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**Published by the C. V. Mosby
Co., St. Louis**

OLD AND NEW VIEWPOINTS IN PSYCHOLOGY

BY

KNIGHT DUNLAP

Professor of Experimental Psychology in the Johns Hopkins
University

ST. LOUIS

THE C. V. MOSBY COMPANY

1925

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Printed in U. S. A.

Press of
The C. V. Mosby Company
St. Louis

150.7
D. 78

54
131
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PREFACE

The present volume contains three public lectures delivered at the Johns Hopkins University, and two papers read before the Southern Society for Philosophy and Psychology. The lectures on *Mental Measurements* and on *Present Day Schools of Psychology* were delivered under the auspices of the University on May 10 and May 17, 1923, respectively. The lecture on *The Psychology of the Comic* was delivered under the auspices of the Johns Hopkins' Women's Club on May 31, 1921. The paper on *Psychological Aspects of Spiritualism* was read at Macon, March 25, 1921. The paper on *The Reading of Character from External Signs* was read at Memphis, April 15, 1922, and is reprinted, by permission, from the *Scientific Monthly* for August 1922.

The lecture on mental measurements was prepared with the cooperation of Dr. Buford Johnson and Mr. Schachne Isaacs of the staff of the Department of Psychology of Johns Hopkins, and represents, therefore, a departmental viewpoint instead of merely my own personal opinions. We believe that the points made in this lecture are of great importance at the present time, and that they should be carefully considered by every psycholo-

gist and other persons working in the mental measurement field. The four other lectures represent my own conclusions primarily, but have had the benefit of the criticisms of my two colleagues named.

KNIGHT DUNLAP.

Baltimore, August 15, 1923.

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CHAPTER I

MENTAL MEASUREMENTS

The field of psychological work at the present time is covered by two overlapping topics which, for want of more appropriate terms are commonly called *general psychology* and *individual psychology*. General psychology, as its name indicates, is the attempt to discover the general facts and laws of mind. If, for example, we are interested in the effects of smoking tobacco, and if in the course of investigation into these effects we should discover that so far as the flow of ideas is concerned, the effect of smoking is to accelerate this flow, to make a man "think" faster; and that the exceptional cases which may occur are due to other assignable causes, working concurrently, and modifying the general tobacco effect: if, I say, we should find such a result, we would be working in general psychology, and our conclusion would be an addition to that field. If, further, we should investigate the difference in the effects of cigar, cigarette, and pipe smoking; or the effects of smoking while learning something new, as compared with the effects of smoking while carrying on perfectly familiar mental processes, we should still be working in general psychology.

On the other hand, suppose we find that certain mental operations are more strikingly affected in some smokers than in others, and that it is important in a number of cases to discover just how large, relatively, the effect is, in order that these men may be advised towards or against smoking. We are interested here primarily in the differences which individuals show, rather than in the common or general factors, and hence this type of investigation is classed as *differential psychology*, or *individual psychology*.

By common consent, experimental work on the problems of general psychology has come to be known as *experimental psychology*. This has happened because experimental work began in this field prior to the systematic development of individual psychology. Experimental research in individual psychology had therefore to be given another name, and is commonly included along with the routine application of measures under the term *mental measurement*. "Mental measurement," then, is the term covering, *first*, the work of devising or creating "tests" of mental capacity or facility, which shall be capable of differentiating individuals in a useful way; *second*, the standardizing of such tests; and *third*, the practical work of applying the tests and evaluating the results.

The difference between Experimental and Individual Psychology is, however, not in purposes

only, but involves important differences in methods of work, which I hope to bring out in the course of this discussion.

There are, however, several further points which must be understood before we are in a position to discuss the subject effectively.

In the first place, it must be understood that experimental psychology and mental measurements cannot be entirely separated. Although the experimental psychologist is interested in the general facts and laws of mind, he arrives at these only by taking into account the individual differences. In searching for the most general laws of learning, for example, the research is conducted on individuals; and the general laws cannot be determined without due consideration of the individual differences. On the other hand, the construction of a mental test which shall have any practical value depends upon the accomplishment of a vast amount of really experimental work, in which general principles as well as individual differences are determined. Individual differences in memory, for example, may be determined; but they are of no value unless we know what the *standards* of memory for that particular form of test are, and also, what the *importance*, for the general mental life, of that particular type of memory is. And these facts must be experimentally determined.

I emphasize this point because there has been an

unfortunate tendency among some of the workers in mental measurements to ignore experimental psychology. We have had the deplorable spectacle of persons knowing little of the field of general psychology, and entirely unfamiliar with the technique of psychological experimentation, attempting to construct "tests" and interpret their results. Of late, this deficiency has even been openly admitted in some quarters and made a matter of pride. Acceptance of the theory called "behaviorism" seems to relieve some mental testers of all experimental responsibility. "I am getting objective results," one prolific constructor of tests recently told me, in reply to my question as to the significance of ratings obtained by the use of a certain test of his. "I can test a thousand children," he went on to say, "and establish norms, and obtain the deviation of any individual from the norm. These are objective results, and I am not interested in theoretical questions of meaning." I mention this case because it is one which most strikingly illustrates the fact that divorcing mental measurements from experimental psychology reduces the measurements either to triviality or to absurdity.

I think the greatest practical difficulty the psychologist encounters, which is little appreciated outside the profession, is the enormous range of the field in which he labors. Leaving out of account the special psychologies such as the psychology of

childhood, abnormal psychology, animal psychology, etc., the differentiation of mental measurement from experimental psychology resembles in degree the differentiation of physics and chemistry; and no one man can now cover expertly any large part of the total field of psychology. Nevertheless, no one can be reasonably expert in either of these fields without some considerable acquaintance with the other, and the demands now made on a candidate for the degree of doctor of philosophy in psychology, whether he be specializing in general or individual psychology, are quite comparable, in respect to psychology alone, to those made on the student of physics, who is required also to have a certain knowledge of chemistry and mathematics.

In the second place, we need to consider the historical development of individual psychology in order to understand its aims and present status. Tendencies towards the differentiation of individual psychology from general psychology may be discerned in the early days of experimental psychology, but most of these early tendencies were not clearly recognized even by those who brought them forward, and they did not eventuate usefully. The actual beginnings of the present development were made by Binet in France, and Ebbinghaus in Germany, and in both cases were attempts at the mental measurement of children. The work in Germany was continued by Stern and others; but al-

though Ebbinghaus' contributions were of great importance, the progress of mental measurement was in still greater degree stimulated by the work of Binet and his coadjutor Simon. The impetus towards mental measurements in America came primarily through Goddard, Huey, and Kuhlman, all of whom were principally interested in the measurement of mental deficiency, especially the mental defects of children. Both Goddard and Huey worked with Binet and Simon at the Sorbonne, and each, on returning to America, constructed a version, or "revision," of the Binet-Simon Scale for measuring "intelligence," in which the attempt was made to adapt the Binet-Simon tests to the requirements for American children. Goddard introduced the method at the Vineland School for the Feeble-Minded in New Jersey, of which he was until recently the head; Huey, after his return from France, worked for some time in the Phipps Psychiatric Clinic at Johns Hopkins. Kuhlman added to the scale, tests for the child from 1 to 3 years of age. The initial interests in mental measurements in America was due to these men, and their revisions of the Binet-Simon tests are still widely used.

The application of the Binet-Simon tests to normal children and to adults was very greatly stimulated by Yerkes, who, with Bridges and Hardwick elaborated a revision of the scale in which a new

method of scoring was used, under the name of the "Point Scale"; and by Terman and a group of collaborators, who published a revision similar to Goddard's and Huey's, under the name of the "Stanford Revision." The Stanford Revision is today the most widely used form of the Binet-Simon Scale in America and Great Britain. Similar adaptations of the Scale have been made for Germany, Scandinavia, Italy, and other countries; and not only has the testing of children on this basis become very firmly established, but the practical success attained in this line of individual psychology has led in many countries to a very great development in measurements applicable to adults and children, in connection with problems of education, criminology, abnormal psychology, commerce and industry.

The Binet-Simon tests belong to the group of mental measurements popularly known as "tests of general intelligence," or more briefly, as "intelligence tests": and intelligence testing is but one branch of the extensive range of mental measurements. But since the vogue of intelligence tests has been of very great importance to the development of other lines of mental measurement, and since the Binet-Simon tests have been the foundation of other intelligence tests, not only historically but practically, it is worth while to consider the characteristics of intelligence tests, and to compare

them with experimental measurements previously attempted.

Experimental psychology from the beginning has been interested in obtaining general principles, and necessarily, therefore, pursued an analytical method. Relatively simple types of functions, such as imagery, reaction-time, and specific types of association in memory, have been brought under experimental observation, and an important body of knowledge has been attained: important not merely to pure science, but important for practical application, even in the field of mental measurements, after that field was developed. But these experimental methods did not, by themselves, yield measurements of value for individual psychology in its practical applications. Both Binet and Ebbinghaus at first attempted to apply the analytical methods of experimental psychology to the problems of individual child psychology, but their attempts were failures. And the attempts of many others, both before and since, have likewise been failures.

Let us consider, as an example of the analytical measurement, the so-called "simple reaction-time." A man, seated in a comfortable chair before a table, listens for the click of a telegraph sounder, or the stroke of a bell: as soon as he hears the stimulus, he presses a key, or otherwise moves his hand or finger in such a way as to make a record of the movement. The time between the sound and the

movement may be accurately measured by appropriate apparatus, and is called the "simple reaction-time."

The reaction-time as measured shows characteristic variations with practice, with the character of the stimulus, with fatigue, and with still other conditions, and the study of these variations has been an important problem of general psychology. But the reaction-time varies also from individual to individual, and there have been various attempts made to use these individual differences for practical purposes in mental measurements. During the war with Germany, for example, a number of workers in England, France, and Italy attempted to use the simple reaction-time as a means of selecting aviators, although those who were familiar with the history of psychology knew well that such attempts were hopeless. Similar attempts have been made in the past to use reaction-times as indices of fitness for various lines of industrial work. But these attempts have been replaced by measurements of complex practical reactions, as similar as possible to the operations of real life. For example: the simple reactions of an aviator tells us nothing of importance: but his ability to manage a complicated series of discriminating reactions, analogous to the operations and discriminations required of him in his airplane, does tell us a great deal.

There are a large number of other simple meas-

urements on the order of these reaction-times which are of great importance in experimental psychology, and through which the problems of general psychology are attacked, but so far they have not been found useful in mental measurements, and the science of mental measurements did not develop until the attempt to apply these simple or analytical measurements was temporarily abandoned.

Ebbinghaus and Binet both tried the analytical measurements, and then, discarding these, hit upon the line of measurement which has made mental measurements a success. But it is important to note, that although the simple or analytical measurements of experimental psychology have not been utilized in mental measurements, it is highly probable that they will eventually be made use of, in conjunction with the more complex measurements in which the foundations have been laid, and there is at present a considerable amount of experimental effort along this line, which ought to be still further encouraged.

There are three important characteristics of the Binet-Simon tests which made them successful, and have set the standards for intelligence tests in general. *First*, they test complex processes, *second*, they are primarily tests of learning, and *third*, they are largely tests of language function. Binet fixed upon certain things which the average child will have learned to do at certain ages, and devised sim-

ple tests to determine whether the child had or had not learned these. For example, the child at three years can be expected to have learned to point to his nose, eyes, mouth, and hair, when these are named. He should know his own name; he should be able parrot-like to repeat short sentences; and so on. At four years, he will normally have learned to compare lines of unequal length, and to recognize and name certain common objects like pennies, keys, knives. In succeeding years he will have learned more complicated operations of counting, comparing weights, recognizing absurdities in statements, working puzzles, and so on. It will be noted that these tests may be called "simple," but the functions tested are by no means simple.

Binet's procedure was a bold flying in the face of precedent, and to many who are unacquainted with the intricacies of mental measurements, the tests still seem arbitrary and trivial. In reality they are a beautiful exemplification of strict scientific method. We want to know the grade of the child's intelligence; that is, his capacity to learn: his capacity to acquire the knowledge and habits which school and life demand of him. Hence, we measure his actual achievements in learning, and compare them with the norms carefully obtained from a large number of children. The most important aspects of learning, for general purposes, are connected with language; hence we pay especial

attention to his linguistic achievements. The Binet-Simon tests are by no means tests of language simply, nor of general linguistic facility. The moron may have a considerable fluency of language, but he does not pass the Binet-Simon test. The test depends on very specific practical applications of language, which determine the efficiency of the normal individual's judgment and thinking. It is because of those features of the Binet-Simon tests that they have been successful, and have served as models for intelligence tests for adults. They proceed directly towards their goal, measuring, without analysis, the very thing for the estimate of which the measurements are desired. It has been rashly said by some enthusiasts that intelligence tests measure "natural capacity" and not "acquisition." This is, of course, the exact reverse of the truth. The Binet-Simon tests, and the typical adult intelligence tests of today, measure acquisition almost exclusively; and from the measure of what the individual has actually acquired, we then estimate his capacity to acquire. The procedure, in other words, is strictly inductive: the individual is a moving body, and by plotting the course he has passed over, we predict the future developments.

It is obvious that the construction of tests of this kind is no simple and easy matter: it is also obvious that the interpretation of the results of such tests is no simple and easy matter; and it is true,

though it may not be so obvious, that the adequate administration of such tests is by no means so simple and easy as it may seem to the amateur.

The construction of an intelligence test for children involves the careful sifting out of those things which the children in the group to be tested have had a chance to learn, and which furthermore represent the type of learning which is of the greatest general importance for practical life. School topics, and other special topics are necessarily largely avoided, especially for the early years. The tests as constructed for children of one nation will not apply to children of another nation without sagacious modification: and even the best tests for American children must in many instances be applied and interpreted with great discretion. We can well understand that Binet and Simon required more than ten years of work for the construction of their scale, and that an enormous amount of work was required for the adaptation of the scale to American needs. For it must be understood that there is little of the *a priori* or arbitrary involved in these tests. They are not based on theoretical assumptions as to what children *ought* to have learned, but on concrete evidence as to what children of varying ages and varying conditions actually *have* learned. In the case of the Stanford Revision, the evidence has been obtained from a thousand cases.

It is true that almost anyone, without any training or knowledge of this subject, can construct a "test" that looks very much like an intelligence test, and that some ignoramuses have done so. But it is, of course, also true that such tests are worthless. To reject the actual intelligence tests, laboriously constructed by experts, because of their similarity to fake tests, is exactly like rejecting the astronomer's telescope because a tin tube, which looks something like the telescope, doesn't aid vision.

The application of tests to children, and the interpretation of results require much more than knowledge of the mechanical method of scoring. For purely statistical purposes, routine administration and scoring of tests on thousands of children *may* give important results. But in the actual use of tests, the individual case is the all-important thing. While one may trust that in the testing of five thousand children, by persons who are merely competent to follow routine directions, the errors in rating will balance each other, so that as many children will be rated too high as are rated too low, it should not be forgotten that serious injustice will be done to these misrated individual cases. In the application of the test, widely divergent results may be obtained by inexperienced testers, and the interpretation of the results, even when these are carefully obtained, depends upon knowledge of children

in general, and upon study of the conditions in which the particular child has been reared.

Unfortunately, there is at present a great deal of application of the Binet-Simon tests by persons who are extremely incompetent. Our department is frequently called upon to rectify the mistake of inexperienced testers who have rated feeble-minded children as normal; and normal, or even exceptionally bright children, as feeble-minded, causing the parents great trouble and expense. It can hardly be too much emphasized that the consultation of a handbook on mental testing, or a six weeks' summer course in mental testing, or a medical degree of the usual sort does not give any person competence in this line; and that even several years of practical experience without proper training and supervision may leave the tester as incompetent as when he began.

The "tests," even the best devised, are after all very much like the thermometers, sphygmomanometers, x-ray machines, and other apparatus which the physician uses in physical diagnosis. Facility in the routine uses of these instruments does not make a diagnostician, although the trained diagnostician may make use of assistants whose competency is restricted to mechanical handling of the instruments under his supervision. In regions where competent physicians are not obtainable, medical diagnosis and treatment of a rough and

ready kind are frequently administered by some venturesome individual, frequently with some measure of success, although not without risk. So, too, in the absence of competent psychologists, it may be helpful in the long run to have mental testing done by a physician, school teacher, or minister, or some other person who has picked up a smattering of the subject. But such conditions, either in mental or physical diagnosis, are to be deplored, and under these conditions patients are subjected to considerable risk. Intelligence testing is the work of a specialist, and requires a specialist's training. The most serious danger in mental measurement today is the incompetent tester, without psychological background, who has picked up a superficial acquaintance with intelligence tests in a summer course, or as a side issue in a course in education, sociology, or general psychology. The rash tester who knows absolutely nothing about the subject is less dangerous than the smatterer.

In spite of all too general incompetence in administration and interpretation, and in spite of the acknowledged fact that the tests are far from perfect, the Binet-Simon tests have proved their worth, and are now essential for the classification of children with respect to intelligence. This success has immensely stimulated research and application in four directions, namely, in the direction of general intelligence tests for adults; in the direction of

tests for special abilities; in the direction of vocational tests; and in the direction of educational tests. Concerning the educational tests, I shall have nothing to say, since they are in the restricted field of measurement of schoolroom subjects, such as grammar, Latin, arithmetic, etc., and hence constitute a topic somewhat apart from mental measurements. The educational tests preferably belong to departments of education, just as strictly as mental measurements belong to psychology, and it is in general productive of inefficiency for either department to operate in the field of the other.

The big development of intelligence tests for adults in America and England was, of course, due to the activities of Dr. Yerkes' band of psychologists during the war. The Alpha and Beta tests are now matters of common acquaintance, and many of the results of the tests of drafted men are common property. Some of the results are the subjects of common controversy; and some, the subjects of too common misunderstanding. From this work came a great impetus to apply these and similar tests to college and high school students, prisoners, immigrants, and other selected groups; and a persistent psychologist at one of the large universities has even pursued the faculty relentlessly with the Alpha test. (But without much success, the faculty members dodging it actively.)

This test has been made a model for a large num-

ber of imitations and improvements, among which the Thorndike, Thurston, and Anderson tests are the best known. Not all the activity in these lines has been intelligent, and some of the general results are perhaps confusing and misleading. Much misunderstanding has been caused by the rash conclusions and hasty assumptions of some of the most prominent boosters of mental tests since the war, and a vast amount of rubbish has been put out as intelligence tests. But on the other hand, progress has been made, the confusions are being cleared up, the reckless theorists and testers are being educated or suppressed, and the last three years have produced a substantial amount of valuable results.

The public as a whole, and even some of the mental testers, have failed to appreciate the time, labor, psychological training, and scientific procedure necessary to produce an intelligence test. Although the development of the Alpha and Beta tests, and their application, was due largely to Dr. Yerkes' persistent initiative, and to the skill and efficiency of his coadjutors, the tests and their applications were based on a large amount of work which had been done before the war. The basis for the Alpha test was largely a set of tests which had previously been elaborated by Otis; but both Otis and the Army psychologists were guided by the results of still earlier work. The Beta tests—the tests for illiterates—were based on the previous work of Por-

teus, Franz, and many others. But even so, the Alpha and Beta tests were not hasty compilations, but were the final results of an intensive investigation in which preliminary forms of the tests were used in research on recruits at two army camps, and on the basis of which the improvements and revisions were made. This work was so thoroughly done that even now the Alpha test is very useful for application to certain groups, such as skilled laborers, criminals, and possibly immigrants, although better tests have been produced for college matriculants, and other selected groups. An improvement on the Beta test for group application has not yet been developed.

It is unfortunate that a great deal of misuse has been made of some results of the army testing work. Demagogues and popular writers have seized upon certain deductions and twisted them to their own purposes, sometimes to sneer at democracy, sometimes to sneer at mental tests. It is especially unfortunate that a comparison made on a small group of soldiers between the Alpha test ratings and the "mental age ratings" on the Binet-Simon tests, should have received wide publicity without adequate explanations. The statement that the average "mental age" of the draft was 13.5 years is viciously misleading, because the term "mental age" in this connection is a purely technical term and is not intended to be taken literally. The

Binet-Simon Scale of ages really stops at 14, the following two grades being "adult" and "superior adult"; sometimes specified as 16 and 18 years respectively. This scale, therefore, is not designed to measure the diverse lines of mental acquisition of adult life; and it is not assumed by those acquainted with the system that the adult who makes only a grade of 12 in the Binet-Simon Scale actually has the mental characteristics of a child of 12. Terman, who is certainly well acquainted with both the Binet-Simon and the Army tests, protested strongly against this attempt to translate adult performance on the Alpha and Beta tests into terms of "mental age" on the Binet-Simon Scale. Such procedure seems to be against the whole purpose and principle of mental measurements and has produced deplorable results in the hands of popular writers in the daily press and various journals of the propagandists and the literatti.

Furthermore, it is well understood by those who did the army work that the draft was not representative of American male intelligence, for reasons too obvious to need elaboration. The assumption to the contrary, which has unfortunately been widely made, would render the results of the army work absolutely useless for any comparative purposes. In fact, all the valid objections which popular critics have made against the wild interpretations placed on the army results were made

earlier, and much more logically, by competent psychologists. The popular criticisms of the supposed results of the Army tests reduce in the main, although perhaps not altogether, to two classes: objection to wild interpretations which psychologists had already rejected and strongly deplored, and objections based on ignorance of the purposes and methods of construction of the tests.

It is true, however, that certain overly enthusiastic individuals in the field of mental measurements have contributed to the confusion by exaggerated claims for the tests, and by rash interpretations. The unfortunate claim to which I previously referred, that intelligence tests do not measure acquisition but measure native capacity directly, is a sample of the misinterpretations which have contributed to the popular doubts concerning the tests; although I believe the confusion on these points is no longer serious.

There are certain other points in connection with the wider application of intelligence tests upon which there has been and still is some misunderstanding on the part of certain active workers in the field. Some have failed to realize that a test must be developed with reference to the type of group to whom it is to be applied, and standardized for that type. I have already mentioned the confusion due to the uncritical application of children's tests to adults. The application of the Alpha

test to college students is apt to be equally unfortunate, because the Alpha test was not made for such a selected group, and hence does not differentiate them in the most useful way. For the differentiation of college matriculates, a test worked out for that type of individual must be used. Several successful tests for this purpose have been elaborated, mostly following the general line of the Otis and Army tests; and one of these, devised by Dr. Johnson, is now used at Johns Hopkins.

A similar confusion appears in the use and interpretation of non-language tests, which are necessary for the testing of illiterates, foreigners, and the deaf. Such tests are the form board, devised by Seguin and improved by Goddard and others; maze tests devised by Porteus and others after his model; picture puzzles, etc. The essential point in all these tests is that the instructions can be given by sign alone, without language. But standards devised for one group cannot be applied *simpliciter* to a group of another type, and the tests are not equally applicable to all groups. For some groups, such as deaf children, it is essential that the acquisitions measured be such as may be learned without help from either spoken or written language. For illiterates in general, the acquisitions measured must be such as may be acquired without written languages, but do depend upon spoken language. For foreigners who read and write in their own

language, but are illiterate in English, the conditions are still different, since the conditions of acquisition are in this case comparable to those of the literate English-speaking persons, but the conditions of measurement are necessarily different. These several requirements are not theoretical, but primarily practical, in conformity with the actual method of intelligence testing. We measure the capacity for learning, indirectly, by measuring that which has been learned, and in every case the estimation of capacity depends on the amount which has been learned, and the opportunities the individual has had to learn.

It is obvious, therefore, that all the non-language tests must ultimately be standardized for the particular groups to which they are applied. We may standardize one of these tests for normal children in terms of the Binet-Simon Scale by giving both the Binet-Simon and the non-language tests to a large group, and comparing the scores on the two. We may find then that statistically, children who make a certain rating on the Binet-Simon Scale make a certain definite rating on the non-language test, and may approximately, therefore, translate ratings obtained by applying the one test into equivalent ratings in the other. But this sort of standardization does not help us much and may be seriously misleading, when we apply the non-language test to the totally deaf child, whose con-

ditions of acquisition have been radically different from those of the illiterates. To assume that the deaf child who makes the same rating as the normal child on a non-language test has the same level of intelligence, would be not only contrary to fact, but contrary to the fundamental principles of interpretation in mental measurements. Similarly, standards attained on English-speaking illiterates cannot be applied directly to literate foreigners or to deaf children, tested by the same non-language test. Standards for each group must be devised directly for those groups.

Although these considerations are obvious to any one who is familiar with the field of individual psychology, they have unfortunately been neglected by many of the routine workers in this field, and the resulting chaos is deplorable.

I have spoken of the "success" which has attended intelligence testing. I must point out, however, that some of the evidence which has been adduced is quite ineffectual. As an example of this situation I may refer to the problem concerning the usefulness of intelligence test ratings as a means of predicting success in college. A great deal of statistical work has been done on the comparison of college grades with intelligence test ratings, but I fear that much of this work is of small consequence. To an unfortunately serious extent, the merely statistical problem has been confused with

the individual problem, and the college problem is largely individual. The application of intelligence ratings, and the obtaining a coefficient of correlation between the ratings and college grades, tells us very little, because the coefficients are usually low (below .5), and the significance of such a coefficient is not self-evident, but requires much detailed investigation of the data, and further investigation of the students themselves in many cases.

This is a highly technical problem into details of which it is not necessary to go here; but it is important that I should say that Pearson's coefficient has been grievously misused in unintelligent work in mental measurements, and the derivation of a coefficient has frequently been made the end of an investigation, when it is properly the beginning only. The coefficients usually obtained between the test grades and grades of practical accomplishment tell us very little about the actual value of the test. In connection with college grades, for example, a "test" which shows a low coefficient of correlation may be a very efficient test; and a test which gives a higher coefficient may not be a better test. The coefficient alone tells us nothing; and even in conjunction with the probable error and coefficient of regression, does not tell us much. Yet, unfortunately, we find sweeping conclusions based on a mere modest coefficient, with-

out even consideration of the coefficient of regression, and no real research involved. This naive and reckless use of the correlation method has been the source of much and serious evil, and is something for which the blame lies entirely with persons who are supposed to be competent in the field of mental measurements.

Such detailed work as that which Dr. Johnson is supervising in our department, and such as has been carried on at Yale and a few other places, tends to show that an intelligence test of a good type is very useful for the rating of candidates for matriculation; and if our present agreement with the State of Maryland, by which we are obliged to take High School graduates without examination, could be terminated, we ought to make a satisfactory intelligence test grade a part of the requirement for admission. But I cannot recommend the substitution of an intelligence test for entrance examinations and for high school records, for it is highly probable that such a substitution would be disastrous. I think psychologists working in this field are in general agreement against such a step, although it has been advocated by certain persons prominent in the field of educational psychology. No intelligence test can possibly take the place of evidence that the candidate has applied himself to opportunities in high school, and a substitution of this sort would, in a short time, destroy the useful-

ness of the high school. The proper normal basis for admission to college, where efficient selection is desired, is, first, a record of satisfactory work in high school, or with an accredited tutor for a sufficient period; second, a thorough examination in certain subjects, at least in English and Mathematics; and, third, an intelligence test. No one of these three alone gives the best possible basis for admission, and the intelligence test has come to be as important as either of the other requirements alone. Of course, moral and other personal considerations should be applied in addition to this formal basis.

Intelligence testing is not the most important part of mental measurements. But I have dwelt upon intelligence testing at relatively great length because it enables us to understand the development, methods, and purpose of the whole subject. We must not forget that the important work before us is the measurement of special aptitudes. This is important not only for educational practice, in the ordinary sense of the term, but also for the field of commerce, industry, and labor, in a much wider way.

We must develop tests for capacity not only for the work of switchboard operators, telegraphers, and jobs in a rubber factory: we must eventually devise means for the determination of aptitudes in the learned professions, including the profession of

being a student in a cultural college. Such development depends not only on the present methods of individual psychology, namely, the measurement of capacity for concrete tasks through the measurement of what has been acquired in them or in similar tasks, but also upon the analytic methods of experimental psychology, hitherto little used in the individual field. Progress has been made in both directions. Tests for efficiency in certain trades have been constructed and standardized. Analytical tests which are possible of application in various situations, as soon as these situations are fully analyzed, have also been developed. As an illustration I may mention the direct test of learning capacity, and test of ability to avoid learning when such avoidance is necessary: such tests, namely, as the so-called substitution tests and color-naming tests designed by Woodworth, whose contributions to the field have been especially noteworthy. We have tests for the ability to sustain attention to simple routine jobs of a monotonous type; and as a result of the work of my own group in the Air Service, we have a type of test of sustained distributed attention to a number of jobs simultaneously; such attention as is required by the automobile driver in traffic. Great future development is necessary along these lines, and may reasonably be expected to occur.

The attempt to make application of mental

measurements to problems of commerce and industry goes back to almost as early a date as the application to children. The long existing demand for tests of this kind is abundantly demonstrated by the fraudulent enterprises which have long flourished in this field under the general title of "character analysis." It is impossible to estimate with any exactitude the number of character analysts now operating in the United States, or the amount of money annually extracted from their very extensive sucker lists. The various systems of character analysis have grown up historically from the systems of phrenology founded by Gall and Spürzheim, and are none of them psychological either in foundation or practice. They agree generally in that they attempt to evaluate mental and emotional capacities and characteristics from anatomical signs, such as the shape of the nose and ears, and the color and texture of the hair. They disagree strongly on the inferences made from these anatomical signs, and this disagreement is a good indication of the fact that none of these systems have either psychological or biological warrant.

The fact that none of these systems are based on experimental work of a scientific character is sufficient to establish that the probability of any of them hitting upon anything of value is extremely low. Nevertheless, there is a profitable sale of books embodying the system, a profitable working

of lecture courses of instruction in the various systems, and a still more profitable rake-off from business concerns which are induced to have the systems applied to their employees at so much per head.

The existence and activity of this group of character analysts has been a great hindrance to the legitimate development of individual psychology, for these persons do not hesitate to advertise themselves as psychologists, and their victims who have accepted them in good faith as such are apt to shy violently at the name psychologist for some time thereafter. We should expect those who have asked for bread and been given a stone to be somewhat skittish thereafter about biting upon bread offered in a package with a similar label.

In spite of this, however, the real demand is slowly being fulfilled. Not only is research in progress and application being made under the direction of psychologists, but many employment managers are using tests which the psychologists have devised. While the disadvantages of inexperienced application are present here, the results are apparently not so serious as in the case of the inexperienced testing of children, and in most cases the tests, even if not selected most advantageously, and even if not applied with the greatest efficiency, seem to be a distinct help; and with moderately intelligent use of tests, conditions are better than without

the tests. This is especially true of the employment of clerical help, and in other lines where employees must be taken directly into lines of work for which rather full previous learning is assumed, and in which there is no opportunity to train novices in the details of the business. In case of scarcity of labor, where there are not sufficient applicants to fill the positions, all methods of selection, of course, fail.

The great promise of progress in the industrial field, however, comes from the nature of the field itself. It is a necessary characteristic of business enterprise not to be permanently discouraged by failure, and to be willing to make investments for future profit. Hence, industrial organizations are willing to devote money to research along lines which have a reasonable promise of future benefits. Certain industrial organizations are even willing to go further, and spend money for research even when it is known in advance that the results of the research will not be immediately applicable to industry. The laboratory for research in pure science maintained by the National Lamp Works is one instance of this profound faith that everything discovered by pure science will have ultimately a practical application. In respect to mental measurements, it is clear that the development of means for the selection, promotion and training of employees is one of the lines of immediate benefits which re-

dound to both employer and employee; and commercial and industrial organizations are increasingly willing to pay their own way in this matter.

In this respect, commercial and industrial psychology is in better shape than any other branch of applied psychology. No one is financially interested in improved conditions for children, or even in improved methods of training teachers, and hence research along these lines depends upon philanthropic individuals, private foundations, and governmental grants. Available private funds are very limited, and public grants are much more easily obtained for any other purpose than for scientific research, especially when the scientific research does not have immediate economic bearing.

Of course, in the development of measurements and technique in the industrial field, a great deal of assistance is coming from universities, foundations, and organizations such as the Carnegie Institute in Pittsburgh, but the main reliance for support must be in the industrial and commercial enterprises directly concerned.

The development of efficient mental measurements in any industry depends on prolonged, intensive, and intelligent cooperation between the psychologists and individuals in that industry. No psychologist supposes for a minute that he can, with nothing but psychological assistance, develop such measurements. The requirements of the in-

dustry must first be studied in great detail. Every distinct job in the industry must have its specific requirements on the workmen or operators accurately analyzed. The analysis must be made by men thoroughly familiar with all the details of the jobs. Second, the requirements which the job makes upon the men must be analyzed, and this is the most difficult part of the work, requiring the highest skill of the psychologist, and involving a separate research problem for each job. Third, the tests competent to measure these personal qualifications must be devised. In some cases, existing tests may be found available; in other cases, the tests must be modified to suit specific needs; in still other cases, new tests must be developed.

But the problem does not end here, nor with the standardization of the technique and interpretation of the measurements, and the training of persons competent to administer and interpret them. Few jobs are static in their nature, and standardization of the requirements for acceptable competency is not sufficient. Measurements of progress in competency are necessary, in order that promotion may be on an equitable basis; and in cases where trade schools are in existence, or are to be instituted, the selection of candidates for admission to these schools, and their classification in relation to the probable department of the trade for which they may adequately be trained, is by no means the least

important part of the problem. Finally, from all this systematic labor, some considerable information as to proper methods of training ought to be made available. Such a program makes the celebrated labors of Hercules look like a game of golf: but this is the type of program which applied psychology faces.

While on the topic of commercial and industrial psychology, I should remark that the applications of psychology to industry are by no means restricted to mental measurements. Some of the most important applications are in the general field to which individual differences are only incidental. Many problems concerning fatigue, illumination, and other factors important in production and important for the well-being of the workers, are within the province of the psychologist, and will not be solved effectively without his cooperation. As an instance of this type of work, I may mention the case of a factory which employed an experimental psychologist to improve their methods of inspection of finished products for the discovery of defects, and which profited financially very greatly by the result of his work, while the strain on the inspectors was very much lessened.

There are, of course, still other lines of development of mental measurement. The problems of criminality and of immigration are now being subjected to investigation. The evaluating of emo-

tional and moral tendencies has been made the goal of a number of investigators, and we may eventually expect important practical applications of the results of their labors.

Throughout the whole field of mental measurements, including that of intelligence testing, the vital need is for the promotion of research. Of late, too great emphasis has been placed upon the routine application of tests, and their merely statistical evaluation. In fact, many individuals labor under the delusion that such routine work *is* research, and the compilation of a new "test" and its statistical standardization is frequently put out as a piece of research. Such routine work is, of course, necessary in connection with research and application, and we must in the future keep many clerical workers and trained technicians busy on such jobs. But psychological research is as vital a necessity in individual psychology as in general psychology, and it is a pity that it cannot be more abundantly fostered. Research requires money as well as time, and capable workers, and money is not as easily obtained for research as it is for application. I may add that so far as my own department is concerned, our interest in measurements is principally in its research problems, and only secondarily in application and routine; although we cannot ignore these others.

CHAPTER II

PRESENT DAY SCHOOLS OF PSYCHOLOGY

The field of individual psychology, which was discussed in the preceding chapter, is a field in which speculation and metaphysical theories play little part. Mental measurements are cold matters of fact, whose excellences and defects depend upon perfection of technique, adequacy of preparation, and skill in grasping and formulating problems. The data are concrete, and the same requirements are placed upon those who gather and analyze them that are placed upon the physicist and chemist. The working hypotheses involved in mental measurement are, in fact, more empirical, less philosophical, than the working hypothesis of the physical sciences.

In general psychology, conditions are somewhat different, although not so different as is popularly supposed. General psychology, like the physical sciences, involves working hypotheses of a far-reaching sort, and wherever significant hypotheses are involved, few men can restrain the tendency to go beyond the scientific requirements, and indulge in tenuous speculation.

I think that psychologists in general are less given to speculation than are men in other sciences;

but a large amount of speculative theory has been injected into psychology by physicists and chemists such as Mach and Priestley, by anatomists and physiologists such as Gall and Loeb, by philosophers such as Locke and Dewey, by medical men such as Freud and Conan Doyle, and by historians such as McLennan and Robinson. Not to mention the theologians, mathematicians, philologists, biologists, psychiatrists, and social reformers.

It is apparently an easy matter for a specialist in some line other than psychology to turn over to psychology and outline a theory, and a great many have been unable to resist the temptation to do so. In fact, I have been inclined sometimes to think that the self-appointed task of Diogenes was comparable to the undertaking to find a man of attainments in some field other than psychology who does not think he knows more about psychology than the psychologists do.

The actual reason for the deference paid by the psychologist to the philosophical speculations of men in other sciences is twofold. The dependence of psychology upon all other sciences, and the need which is impressed upon every psychologist of having a considerable acquaintance with several other sciences, naturally predisposes him to setting a high value upon the metaphysical opinions of leaders in these sciences, as well as upon their scientific contributions. Furthermore, it is notable

that many of the most important contributions to psychology itself have come from physicists such as Helmholtz, physiologists such as Sherrington, biologists such as Jennings, philosophers such as Berkeley, and men of rank in other sciences. It is only recently that psychology as such has existed, and its pioneers are to be found among specialists in other subjects. The psychologist should note, however, that the scientists who have made the actual contributions are generally those who have the least concerned themselves with psychological speculation, and vice versa.

Regardless of these matters, it still remains true that speculation in psychology is an interesting thing: that psychologists in the hours of leisure from pressure of scientific work like to divert themselves therewith, and that, unfortunately, a few psychologists have speculated somewhat wildly. The interest of the public in psychology is very largely an interest in psychological speculation, rather than in the larger and more important part of the subject, and naturally, therefore, they are most interested in the psychology of the historian, the philosopher, and the man in other sciences, who can speculate on these matters most entertainingly, because they are not impeded by the reference of speculation to matters of fact. I am not denying the importance and value of speculative work, when it proceeds on the basis of sound logic and a thor-

ough knowledge of the work of preceding speculations, but I propose to discuss today only certain speculative movements which have actually had a practical bearing. Speculation on the psychological aspect of the controversy between mechanism and vitalism does not interest me at all, because it has no real bearings on psychological research. The speculations of the behaviorists, on the other hand, do interest me, because their theories have influenced their experimental work.

McDougall remarked recently that behaviorism is frequently presented to students as the only alternative to a certain other type of psychological theory commonly known as introspectionalism: whereas there is actually a third alternative, namely, *psychology*. McDougall thus presented very neatly the crux of the situation. For behaviorism is a speculative point of view derived indirectly from the physiologists, as a rival to the introspectionalism derived directly from the philosophers; and the main current of psychological progress flows on quite happily without being much affected by either except through a temporary deflection of energy into eddy pools. Psychology, as a matter of fact, was just passing the eddies of introspectionalism when the eddy of behaviorism set in.

Introspectionalism was a historical outgrowth of the "idea philosophy" of Malebranche, which John

Locke took up and transmitted to philosophical posterity. This was the notion of the mind as a collection of mental furniture: a congeries of some sort of shadowy objects, which could be directly observed, albeit with difficulty, and which obviously therefore should constitute the materials for psychology. The component parts of this collection, or stream, of mental furniture, Malebranche, and Locke after him, called *ideas*. Others called them *sensations* and *feelings*, and William James called them substantive and transitive *states*. From this conception of mental objects arose the controversy over the relation between the world of mental objects or mental content on the one hand, and the world of matter on the other. This controversy, with its traditional positions of materialism, dualism, and idealism, has proceeded like a complicated game of chess in which all moves are upon a fixed board—the board in this case being the theory of ideas constructed by Malebranche,—and the game ceases abruptly when the board is taken away.

Experimental psychology, in its early history, was greatly impressed by the doctrine of “ideas,” and struggled bravely to translate its methods and results into the terminology appropriate to that doctrine. Worse still, it tried to adapt its experimental technique, and mould its problems, to fit the better into the theoretical formulations, and in so doing, it limited its field narrowly to the study of what

it called "sensations," "images," and "feelings," and limited its method to what it called "introspection."

In spite of this narrow tendency, however, progress in real experimental work was rapidly made. It was fortunate that many psychologists, after formulating a narrow conception of psychology, were able to ignore the conception and go about their experimental work untroubled by their philosophy. In the decade prior to 1900, the work of McDougall in England, Ebbinghaus in Germany, of Münsterberg, Stratton, Bryan and Harter, Dodge, Thorndike, Judd, Angell and others in America began to show clearly that the actual field of psychology could not be described in introspectionalist terminology, and that the field was, and always had been, far wider than the narrow patch to which the philosophy of ideas had attempted to restrict it. In that decade, the development of the conception of psychology as a truly scientific subject was well under way. The revolt was a quiet one, avoiding as far as possible shocking the preceding conventions, employing familiar terminology where possible, and maintaining a profound respect for the older generation from whose leading strings the younger generation were severing themselves. And as quiet revolutions are apt to do, it made progress very rapidly. Discussion, and even reference to, the problems of psycho-physical parallelism

and interactionism, and similar points which had interested introspectionalists, very soon ceased entirely. It became admitted that the most important business of psychology was not the analysis of the objects or contents of observation, but the study of the laws and conditions of the actual process of observation itself. And, further, it was admitted that an essential detail in this study was a study of the reactions of the human animal, particularly of the conscious reactions. And this did not appear to us as something new for psychology, but as something in which it had really been engaged for a long time, in spite of formulations which sought to disguise it and which did somewhat inhibit it.

The results of this development were not satisfactory to all psychologists in the United States, and a certain reactionary group was drawn together about Professor Titchener in close defensive union under the name of "structural psychologists." Various groups of the more progressive received or assumed such names as "functional psychologists," "genetic psychologists," etc., names which had but a vague significance at the time and have none whatever now.

Since that time, the "structuralist" group (we can use the term here as merely indicating *reactionary*) has broken up into sub-groups, and in spite of a heroic attempt to maintain its principles unfalteringly, seems to have suffered modification

in different directions, until now those who ostensibly adhere to this party differ from one another very much, and most of the sub-groups show strong tendencies towards assimilation into the general group of plain psychologists.

It was in this period of transition, and as an episode of the transition, that the doctrine of "behaviorism" arose. The behavioristic movement has had three well-marked stages, and it is important that we should consider all three of them. The first stage was quite innocuous, and began with McDougall and Singer as a protest against the ideapsychology, and an emphasis on the wider correlation of mental life and physiological activity, emphasizing responses rather than the hypothetical activity of brain cells. This "behavior psychology" received a strong impetus from the rapidly developing work on animal behavior which had been started by Thorndike, and extended to the white rat by Small.

The second stage was initiated by Watson, who adopted the designation of "behaviorist," and headed a revolt which seemed to be against introspectionalism, but was in reality far more of a revolt against the behavior psychology of McDougall and the general progressive movements in psychology. On this account, McDougall has since repudiated the designation of behaviorist, and "be-

haviorism" now means the Watsonian view exclusively.

In order to understand the motivation of the behavioristic school, it is necessary to realize that the introspectionalists, in America at least, had repudiated consciousness in its most important and most common interpretation. For be it known, that the term "consciousness" has long had many significations of which two are especially important. First, it has meant, as it probably means to most of my audience, the *observing*, or *being aware* of anything whatever; so that a man is said to *be conscious* when he is aware of something, or is observing anything. Second, the term was applied to the things which the idea-philosophy supposed to be alone capable of direct observation, namely, to the "ideas," or "sensations" and "feelings" which in this philosophy made up the "mind." Now the introspectionalist admitted the *fact* of consciousness in the first sense, but denied that psychology was concerned with it. Both James and Titchener stated this point of view explicitly. Consciousness, therefore, in so far as this psychology dealt with it, was applied to the hypothetical ideas, sensations and feelings. Introspection, by this readjustment, lost one of its most important traditional meanings, and became the name of a vaguely conceived method of the observation of "ideas." In fact, it has been very difficult to pin the introspectional-

ists down to an exact meaning of the term, and I have earlier pointed out that their various theories as to the use of the term by no means agreed with their practice.

Watson's first move was to reject consciousness in all senses, and introspection in all its meanings. This move, according to his own statement, was based on an attack I had made upon the doctrine of introspection, (which attack, however, was merely upon one of the theoretical significations of the term and upon the introspectionalist theory of images); and was a part of my program to restore the concept of consciousness, as the fact or act of observing, to its rightful place in psychology. So that although Watson has called me the father of behaviorism, I must insist that my parenthood was entirely inadvertent.

Watson repudiated entirely *observation* as a matter for scientific consideration, as the introspectionalists had already done, and rejected *introspection* also, not only in the traditional sense, but also in the various vague introspectionalist senses, and unfortunately also rejected the very common sense usage which includes under the term the observation of one's own bodily processes. This rejection led directly to the position that although the experimenter could observe his subject, whether human or animal, he could not consider any observation his subject might make: for such ob-

servations are not only conscious, but they are also, by one or the other of the definitions of the term, *introspection*.

Watson's behaviorism, then, threw overboard all experimental methods which depended upon the subject's own observation. You could not determine the brightness of light which would produce a perception of light because that determination would involve "introspection" in one of its senses: and "consciousness" in its legitimate sense. You could not even make the usual dynamometer tests, because that would involve the subject's introspection as to whether he really was squeezing the dynamometer as hard as possible. By a simple analogy, no *instructions* could be given to a subject. The human animal, in regard to introspection, was to be treated just like a four-legged animal, so, to make the case complete, he must be treated just like the white rat which cannot be given verbal instruction.

Behaviorism, in other words, accepted the Titchenerian view that there was a vaguely defined field for introspection but proposed to ignore it. Observations made by the person experimented upon (the reactor, or subject) were not desired: the experimenter trusted and recorded his own observation of the subject: but he denied himself the use of the subject's observation, which psychologists in general have found of very great assistance.

The result of this new position of the behaviorists was appalling, or amusing, according to your point of view. Subjects were put through reactions with a minimum of instruction, and the experimenter conscientiously refrained from asking them afterwards what they had been trying to do. In some cases the results were a bewildering maze of confusion; in others, the experimenter made interpretations which were exploded when later investigators repeated the work under strict psychological conditions.

Perhaps the most striking *reductio ad absurdum* of the whole theory was furnished by an experimenter in a Western university, who obtained from several subjects records of their tapping on a simple telegraphic type of key. Apparently the subject was merely instructed to sit by a table on which the key was placed, and to keep on tapping until told to stop. These instructions, although verbal, were such as could theoretically have been given by signs alone. The taps were recorded on the smoked paper of a revolving drum and subsequently the spacing of the taps was measured. Interesting periodic groupings of the taps were discovered, and the experimenter elaborated a complicated mathematical formula to account for this, and to indicate a law of periodicity in behavior. One of the reactors distributed his taps in groups of 22, with a distinct pause between groups. Since

the general rate of tapping in this case approximated the beats in waltz time, and waltz music is typically written with a pause or prolonged note in the eighth measure of each half strain, I wrote to the experimenter suggesting the inquiry whether this subject was not consciously beating out a waltz rhythm. The experimenter replied indignantly that he had not, and would not, ask the subject about it, because he was a behaviorist, interested only in scientific results, and not at all in introspection.

The uselessness of such experimental work eventually dawned upon the group of behaviorists, and their theories were very vitally modified in consequence. They then adopted the notion which several psychologists had already suggested to them, that they could consider speech as a form of behavior; a response of the vocal organs: that the air waves resulting from the experimenter's vocalizations are legitimate stimuli to the ears of the subject: and that the vocal reactions of the subject himself should be recorded and emphasized in interpretation along with the reactions of his arms, legs, and vascular system.

The final form of behaviorism, therefore, actually provides for doing all that the introspectionalists of any type have done, by the mere substitution of the terms "vocal behavior" and "graphic behavior" for the usual spoken and written reports

of introspection. It has, in fact, been acknowledged by one of the leading American introspectionalists that the difference in *theory* between the two schools is now merely verbal.

If theory alone were important, we might now consider the whole behavioristic episode closed, the behaviorists having completed their somewhat speculative side excursion, and returned to the road at a point somewhat in advance of that at which they left it. A lexicon could be prepared by which the verbiage of the behaviorists could readily be translated from behaviorism into ordinary psychology, and all would be well. But unfortunately, the episode is not quite closed, since the habits of loose experimentation formed by behaviorists under their first theory still seem to cling to them under their second, and are maintained in part through the retention of the earlier terminology, and in part by the same attitude towards analytical work which contributed to the earlier defection from psychology.

This looseness of experimental procedure and interpretation may be illustrated by referring to an investigation which is typical. The psychologist has long been interested in the genetic problem, but has found its difficulties very great. We should like to know, for example, at what age or stage of development the child first begins to experience *fear*. But no one has as yet found a method of

solving this problem, although a considerable number of writers of popular texts on the child give dogmatic opinions on this as on the many other problems of childhood*

But the behaviorist on this point has a simple method of approach. He stimulates the child, perhaps by a loud, shrill note; obtains a reaction which is somewhat like certain responses of the adult in certain types of fear; and states very confidently that the child showed the "fear-reaction."

The psychologist, of course, cannot accept this conclusion so easily. He notes that the reaction is not only similar to certain fear-reactions by the adult, but that it is just as similar to certain other reactions; for example, to certain reactions the adult makes to painful stimulations without fear. He doesn't know, therefore, whether this is a fear-reaction or a pain-reaction; nor does he even know for certain how far the infant, when suffering a certain type of fear or pain, will agree in his reactions with the adult or the older child.

In theory, these considerations should occur to the behaviorist as well as to the psychologist; but unfortunately, in a great many cases, they do not occur to him. Nor is he always willing to see them when they are called to his attention. In the illus-

*For sheer literary ingenuity, the various books on the "psychology of childhood", are to be highly commended. It is worthy of note that most of these books were written by professors of philosophy, ethics or education, and that the psychologists have been very cautious about generalizing in this field.

tration given, the behaviorist would probably claim that all *he* means by fear is that particular reaction, regardless of the other types of reaction which occur in what adults call fear, and regardless of the very similar reaction which occurs in what adults call pain. In that case, of course, the use of the term "fear" is entirely misleading. But if the behaviorist did not use the term, but simply described the actual reaction evoked by an actual stimulus, his results would have little bearing on the problem he started to investigate. He would simply have the record of certain arm, leg, trunk, and vocal reactions which the child made to certain acoustical stimulations, and would need a vast amount of further experimental work before he could connect these with the reactions which adults make to various stimuli. He would have no basis so far for generalization as to the origin of fear, nor its genetic relation to other emotions.

We have here come upon the actual vital point of behaviorism, which constitutes its serious shortcoming. Psychology, from the time of Aristotle, has been interested in the study of behavior, and the great progress made in experimental psychology in the last sixty years has been in the perfection of means of measuring and recording behavior. The flourishing of the introspectional school, which did neglect the behavior side of life, did not prevent this great development. The important differentia of

behaviorism are, first, that it does not sufficiently emphasize the study of behavior, and second, that it permits itself rash and hasty inferences from behavior imperfectly studied.

In the case of the child, the crying need is for extensive and detailed study of the child's reactions under carefully controlled conditions, with full psychological technique. It will be a long time before interpretation in terms of fear, judgment, and other terms of adult life will be in order: a vast mass of data must first be gathered. In other words, what is needed is not behavioristic work, but an intensive study of behavior by methods which psychology has been developing and perfecting during the last generation. And in the case of adult psychology, the same furthering of sober, scientific investigation is needed.

The "idea psychology" has not only given rise to the schools of introspectionalism and behaviorism, but also to a still more interesting and thriving movement which is popularly known as Freudianism, or more strictly, psychoanalysis. This movement has caught the public attention very strongly for two reasons, first, because it deals much, and often crudely with sex problems; and second, because it offers a system of mental healing, an offer which has always caught the attention of the crowd, as the history of New Thought, Christian Science, and many other cults demonstrates. Into this part

of the movement I shall not go extensively. Janet, the eminent French psychiatrist, long ago pointed out that the results of treatment by the adepts in the various systems of mental healing have no bearing on the evaluation of their theories, because all the systems offer equally good evidence of cures effected. Psychoanalysts point to "cures"; so do Christian Scientists, and New Thoughtists; and the Grotto of Lourdes offers its cures also, as do the Mormon elders and other exponents of divine healing, and the proponents of osteopathy, chiropractics, and numerous other systems, including that of the more recently notorious Mr. Coué. Janet goes further and admits that neuropathic cases may actually be greatly helped—"cured" is a relative term—by all of these systems, whose theories are so widely diverse.

Nor would the theories of the psychoanalysts interest us, except for the fact that they claim to supplant psychology, and the methods even of the historian and archaeologist; and to give a simple and clear explanation of religion, art, literature, and almost everything else of human interest. Further, the theories and methods of psychoanalysis have progressively absorbed a great deal of our prosaic psychological data, reformulating them, of course, in accordance with psychoanalytic principles, so that it is coming to be popularly supposed that these data were discovered by the psychoanalysts,

and it is even frequently supposed that psychology and psychoanalysis are identical, instead of antagonistic. Even some psychologists, whose theories were strictly those of the idea philosophy, have been fascinated by the new formulation, which is in reality a logical development and expansion of that philosophy.

It is practically impossible to give an outline of psychoanalytic theories which is not open to immediate objection. The vast expansion of the school, and its popularization by many writers has resulted in a great multiplicity of systems, some of which differ from one another so much as to be really contradictory. In addition to the three orthodox divisions of the school, represented by Freud the founder, and by Jung and Adler, his most celebrated pupils, there are many "wild" systems which are denounced by the leading psychoanalysts. Again, the orthodox exponents express themselves in conflicting ways. A psychoanalyst who strongly condemned a recent book* of mine which deals with the problem, while admitting that every point I made was backed up by authentic quotations from the writings of accepted authorities, denounced my procedure as unfair, and said that I should also have considered other passages from these same authors, in which they say the

**Mysticism, Freudianism, and Scientific Psychology*, St. Louis, C. V. Mosby Co., 1920.

exact opposite. Again, in the case of many psychoanalysts, there is an exoteric and an esoteric doctrine, the doctrines presented for public consumption being much milder in their treatment of sex than are the doctrines presented to the initiated.

There are, however, certain principles which are characteristic of the general movement, which cannot be denied. And these points alone I shall discuss.

In the hands of some of the classical "idea psychologists," the "ideas" are not merely mental furniture, as in Locke and Wundt and James, but are forces, or things which exert force. This is, of course, characteristic of Herbart, and it is the Herbartian philosophy from which Freud, the founder of psychoanalysis took his start. To this foundation Freud added a concept of an "unconscious" mind, or unconscious part of the mind: a concept tentatively developed by Janet, but, if I am not mistaken, repudiated by Janet after Freud took it over.

What Malebranche and Locke called an "idea," Freud and his followers, in so far as active force is attributed to these ideas, have generally called "wishes." But they have also used the term "idea" and other similar terms, when the dynamic feature of the mental furniture was not to be so much emphasized.

It must be remembered that in the traditional

"idea philosophy," the idea is strictly not the *observation* of something, but the *thing observed*, although it is by no means uncommon to slip in the other conception illicitly from time to time when it serves an argumentative purpose. If these "ideas" are, in effect, entities, which can be observed, why cannot they exist and exercise their energies, even when not observed? Here you have the foundation of the doctrine of the "unconscious mind"; that realm in which these "ideas" or "wishes" exist when they are not being observed.

The psychoanalysts' conception of the unconscious mind may best be presented by an illustration which Freud himself gave. He likens the mind to a town meeting at night in a well lighted hall. Certain rowdies present create a disturbance, interfering with the orderly transaction of business by the other persons present. They are accordingly ejected to the dark exterior, but they disturb the meeting more from outside by yelling and hurling bricks through the windows than they did from inside. The rowdies are the "wishes" which have been thrust out of the conscious mind into the unconscious. In this condition, they are called "repressed wishes," "repressed ideas," "repressed desires," or "complexes."

At this point another important concept is introduced, namely, the concept of repression. The "wishes" tend to remain in the lighted room, and

active force is required to put them into the outer darkness. This force or activity is *repression*. Repression is, moreover, a continuing activity. The wishes do not meekly resign themselves to their fate, but constantly struggle to return to consciousness. Repression, therefore, is not a mere *putting* of the wishes out, but a *keeping* of them out. The activity of repression is sometimes concretely described as the work of the *censor*: a concept not to be taken too realistically, even in the Freudian system. But the picture is complete if we represent the censor as a sort of policeman or a "bouncer."

It may be said that this schematization is mere metaphor, and intended as such. If this were always the case, there would be no harm done. There is no objection to the construction of allegories. But unfortunately, the acceptance of allegories usually has an effect on practical belief, and this is very decidedly the case here. As a strictly allegorical formulation, Freudianism vanishes into a merely literary field, and this is by no means what psychoanalysts aim at. Not only is the allegory accepted quite literally from time to time, but practical deductions based on it are of high importance to the psychoanalysts. Whenever allegory is mixed with attempts at science, we become suspicious of the resulting mixture, and our suspicions are usually justified.

So far the Freudian system is a mere clever combination of abandoned parts of old psychological machinery. But Freud made certain ingenious additions to the machinery in the way of cogs and springs, which may have been original with him. There has been controversy on this point, but I am willing to ignore the controversy and give Freud the credit, if credit it be.

Freud announced that dreams and neurotic symptoms are due to the constant efforts of complexes to escape from the unconscious mind and enter the conscious mind: or rather, these phenomena are due to *conflict* between the "complexes" and the "censor." To make this ingenious scheme work, Freud borrowed another notion, this time not from the philosophers, but from certain men who might be classed as archaeologists or anthropologists. This notion was that of symbolism.

The concept of symbolization is, of course, familiar. For our convenience in thinking, and for purposes of communication of feeling and thought, we employ a concrete object to represent a group of objects, a situation, or an abstraction. The American flag, for example, symbolizes the nation in its various aspects; the cross symbolizes Christianity; and a dollar bill symbolizes real money. In connection with symbols a group of authors, including Payne Knight, Thomas Inman, and many more eminent men, long ago pointed out two things

which may be true: first, that many, if not all, of our common art forms, and many of our common literary expressions were originally symbols with distinct and somewhat complicated meanings, which meanings have been largely lost; and second, that a great deal of this symbolism was sexual, that is, it referred to sexual situations or problems, or more frequently referred *through* these to philosophical or religious abstractions. From this point on, these older symbolists went rather wild, and reconstructed the lost meanings of some of the symbols by pure analogy. And Freud, in taking over the suggestions these men made, took over also the easy method of analogical interpretation and applied it to the analysis of dreams.

The demons of the dark underworld of the mind, according to Freud, escape into the light of the conscious mind in dreams. During sleep, the light is less and the censor nods. But even then, a demon cannot get by him, except in disguise: and these disguises are *symbols*. A man who has the unconscious wish for the death of his father, dreams of the death of some man who resembles his father: this man being said to symbolize the father: or he dreams of his father being in a flower bed, the floral setting symbolizing a funeral. The woman who has repressed sex desires dreams of her purse being empty; or of being very hungry, and so on. These repressed desires also interfere with the

processes of waking life, symbolically. If you forget a man's name, it is because unconsciously you have a grudge against him, or associate him with some unpleasant past incident. If you lose a pin some friend has given you, it is no accident but a symbol. Perhaps it means that you would like to forget the friend, or to be unfaithful to him. This analogical use of symbolization covers the whole field of human interests, but its greatest rioting ground, of course, is in the field of sex.

Some of the psychoanalysts treat the symbols very elastically, but some, like Freud himself, conventionalize the symbols so that a certain object, or a certain situation, generally symbolizes a particular thing, act, or situation. Certain objects you dream of symbolize the female sex organs, others the male; activities such as flying or falling, symbolize sex activity. Dreaming of appearing in public all too lightly clad symbolizes the wish to expose your person beyond the legal limit. One of the most astonishing interpretations is recorded by Jung. One of his patients dreamed of a certain number. By adding in an ingenious way the figures for the year, month, and day of birth of the patient, of the patient's wife, his mistress, and his two children, the total gave the number, which is therefore the symbol of the patient's domestic triangle.

Nervousness, hysteria, neurasthenia, etc., according to the Freudians, are due to conflicts, that is,

repression of wishes. In arriving at the repressed ideas at the basis of these neuroses, the interpretation of dreams is much employed, along with interpretation of the slips and lapses of everyday life, and associative processes obtained from the patient.

The sexual complex looms large in the mechanism of Freudianism. Certain stock complexes, such as the Edipus or "mother" complex (the sexual desire of the boy for his mother); the Electra complex (the desire of the girl for her father); homosexual and perversional complexes are dug out of the unconscious in profusion. There is no reason, Jung tells us, why sex complexes should be in such overwhelming majority, but as a matter of fact, they are so found, he says. Other types of desire are repressed, but the sex desire is the chief basis of the complexes. Some of the psychoanalysts try to disguise this situation by claiming that they define sex in a broader way than that in which it is commonly used. But I find that in general, when they say sex, they seem to really mean sex.

From this point on, the divergences among the psychoanalysts become very great. Some tend to find the mother complex predominating; some find other complexes; others try actually to minimize the sex factors. The time of origin of the more deadly complexes has been pushed from the period of puberty back to infancy, and Jung pushes it back to the antenatal life. Some have done away

with wishes and complexes, substituting vaguer conceptions, if vaguer conceptions be possible. Some eminent psychoanalysts have renounced the theory of Freud almost entirely, employing merely the general method of delving into the unconscious mind by varying procedures. Further development of the psychoanalytic doctrine resolves itself into description of widely varying schools and individual theories, and is therefore outside the purpose of this paper.

The only common feature of psychoanalysis today is the insistence on the unconscious mind and its deadly power, and the corollary emphasis of the evil of repression. It is, therefore, of these concepts that I wish to speak in more detail.

There would be no harm in the concept of the unconscious mind if we should remember that it is an abstraction, and not a concrete fact. To say that a certain phenomenon has a cause in the "unconscious" is merely to say that it undoubtedly has a cause, but we don't know what the cause actually is. Our ancestors, in attempting to assign a cause for thunder and lightning, said, "it is the work of the God." And that statement is unobjectionable if you don't make the mistake of assuming that it is a scientific explanation. In a similar way, when the Freudian says that a dream is caused by "unconscious mind," there would be no objection to the statement, if it were not offered as an explanation

of the dream. Physical science wants to know just how thunder and lightning come about, and it has made very satisfactory progress in finding out, in spite of some objection in the past from theologians. So psychology wants to know just how dreams come about, and it has made some progress toward finding out. But it gets no help from the Freudian formulae. The doctrine of the unconscious mind, like the doctrine of God, belongs strictly to religion, and not to science.

The psychoanalyst cannot get away from the doctrine of a mind which is a *thing*: a soul: something which has ideas as a tree has leaves, or as a dog has fleas. Psychology has abandoned these concepts, and deals only with a mind of a purely factual sort, namely, the series of acts which the individual *does*, which are popularly designated perceiving, thinking, and "having" feelings. That these activities occur is agreed: and psychology studies these activities and their laws and conditions. These conscious activities constitute the *mind*, and the psychologist therefore has no interest in an alleged "unconscious mind," unless you mean by it merely physiological activities. And to these activities he prefers to apply the perfectly unequivocal term *physiological*, although he admits that they have their effects on the conscious activities. Any other "unconscious mind" would be an equivalent to "activities which aren't active," and

this paradox the psychologist finds absolutely useless for scientific purposes.

Perhaps one source of the Freudian confusion has been the difficulty of conceiving of a "capacity" or "potentiality" as modern scientists view it. If a man can solve a problem in calculus, then, obviously, he had a "capacity" to solve it. But really, we mean by "capacity" nothing but an abstraction: the fact that the operation can be carried out when the proper time comes. "Memory" does not imply the laying of an "idea" away in cold storage for a time, and then later bringing it out of the refrigerator. It merely means that there is the abstract possibility of thinking in a certain way, and that that "capacity" depends on previous thinking. But in the interval between thinkings, the "thoughts" simply don't exist. The conditions of thinking are closely similar to those of billiard playing: you learn to make a shot by shooting: but in the intervals between shootings, there isn't any "shot."

It is argued: *something* must exist in the interval between shootings, and in the interval between thinkings; and this "something" must have been modified by the shooting and the thinking in such a way as to make the further thinking and shooting possible. Well, let us admit that. In the case of the shootings, the something is the human body, including especially the nervous system. And the

laws of learning are so nearly similar in the two cases that modern psychologists conclude with increasing assurance that in the one case as in the other, the nervous system and modifications in it are the connecting links. In so far as a capacity for thinking, feeling, or perceiving exists as a concrete fact, it is a disposition of the nervous system and nothing else of which science can take account. But we know little as yet concerning the nervous system, and the acquisition of greater information concerning it is one of the least important problems of psychology. In the case of dreams, for example, we want to know what preceding details of thinking and feeling and perceiving have occurred, together with the stimulation now playing upon the dreamer, to produce the thinking, feeling, and perceiving in this dream. In fact, until we know such causal relations thoroughly, we shall not be able to know the details of the actions of the nervous mechanism which make the causal relation possible. And we have by painstaking acquisition already a lot of information about the mental life, because we have resolutely refused to be satisfied with empty formulae such as the "unconscious mind." The unfortunate feature of psychoanalysis is not the theory of the unconscious *per se*, but the fact that the theory as held inhibits the scientific curiosity of those who hold it.

I cannot leave the subject of psychoanalysis with-

out commenting on one of the unfortunate practical points which has come out of the mass of foolish theory, and that point concerns *repression*. Repression is the Freudian term for the attempt to forget or ignore unpleasant things, or to withdraw the attention from desires which are unethical or whose satisfaction is inadvisable. And we are told that repression is bad, and parents and teachers are urged to teach children not to repress.

Nothing could be more vicious or absurd than this doctrine, if we take it seriously. Actual repression is the only salvation of man if civilization is to continue, and the ability to repress effectively is the greatest asset a human individual can have. It is true that constant struggle is bad, and the struggler needs aid in repressing. But nothing is more weakening than to keep thinking of past mistakes and illicit desires. In particular, the adolescent boy and girl need to have their attention drawn away from the surging desire of sex and turned in other directions. And it is just those features of the movies and other details of modern life which interfere with the repressions which are most deplorable.

The treatment of the mentally distressed and struggling is a vast problem for the psychologist and the psychiatrist. Many features of the practice of the priest and psychoanalyst are good: confession, sympathy, new direction of attention, ex-

pert advice, these are the factors which have made the success of priest, physician, and psychiatrist. But they succeed best when unhampered by mythological notions, and when guided by knowledge of human nature. On the other hand, the evil results of bungling attempts to work with these patients are matters of observation. One has but to see and examine some of the patients who have been through the mill of treatment by psychoanalysts to follow the theories strictly, to be impressed with the danger of that mill. Fortunately many of the practicing psychoanalysts, so-called, use good common sense and everyday psychology, and are no more Freudian than I am.

So far as I can make out at the present time, Freud and his disciples have contributed nothing of value to psychology, and if they have contributed anything to medicine, it is rather discreditable to medicine to have been so far behind the progress of psychology that it could profit by this mixture of psychology and superstition.

Turning now from the speculations which the philosophers, aided by the medical men, have injected into psychology, we come finally to a speculative movement of great proportion into which the philosophers and biologists have carried the psychologist. For many years the conceptions of instinct and intelligence have been used as opposed to each other, or at least as complementary.

The actual significance of each of these terms has varied from time to time, and from theorist to theorist, and as a result, discussions concerning the relative part played by these two in the life of man and the lower animals have been rather profitless. Modern psychology has become rather cautious in the use of these terms, and by a rather general consensus of opinion now uses the term "instinct" as an abstraction, covering the fact that the various reactions of which an animal is capable have a basis in heredity, and that the animal is therefore to a certain extent predisposed to certain lines of action upon certain stimulations; predisposed through the normal growth and development of the organism itself. Intelligence, also, is used as an abstract term, to indicate the fact that these hereditary tendencies are modified, in many cases at least, through the experience of the animal; in other words, that the animal *learns*. It has been admitted, therefore, that no action is the result of intelligence alone: that however much learning there may have been in the development of the reaction, such learning always has a basis in innate tendencies. It has not been so generally admitted that no action is purely instinctive, but the present tendency in American psychology is in that direction. The complicated actions of the child in sucking milk from the breast of the mother have very frequently been described as purely instinctive. The

child, when first applied to the breast, has apparently had no chance to learn the nicely coordinated complex reaction by the numerous muscles involved: the coordination has therefore been supposed to be "instinctive." At present, on the basis of our fuller knowledge of the various factors involved in learning, we very seriously doubt the merely instinctive character of this performance, and there is a growing interest in the study of the prenatal life of the child, with a view to determining the course of development of its reaction tendencies. Even in the case of the bees, ants, and wasps, the actual relations of "instinct" and "intelligence" are now not believed to be so simple as they once seemed.

The tendency towards an abstract use of the term "instinct" is, however, a rather recent development. There has been in the past a very prevalent use of the term in a concrete sense, as if it indicated a specific force, or specific assemblage of forces. We have been accustomed to hearing about "instincts" in the plural, including the "reproductive instinct," the "pugnacious instinct," the "gregarious instinct," and many others. This usage was prevalent even four years ago, and the "instincts" as concrete facts were so generally accepted that there was much speculation as to the exact number and nature of the human "instincts," and the exact relation between an "instinct" and a mere reflex

act. Psychologists took the "instincts" so seriously that they were in the habit of pointing out the necessity of using the term carefully, and protested against the "loose" usage of popular writers and speakers who created a "religious instinct" a "political instinct," an "artistic instinct" or any other instincts they happened to need. But of late interest in these distinctions has waned at an astonishing rate.

Although "instinct" has been a serious topic for psychological consideration, the rise of an instinct-psychology, in which the concretely conceived instincts were made the basis for a whole psychological theory, was definitely due to McDougall. Many psychologists had worked out lists of instincts, ranging from the familiar pair of "self-preserved" and "reproductive," up to the indefinitely long list of Thorndike. But none of these psychologists had had the notion of founding a psychology on such a list, although Thorndike perhaps came near to it. We may reasonably, therefore, call McDougall's psychological theory, as he has developed it during the last twenty years, *the* instinct-psychology.

I suppose that McDougall has made in total as great a contribution to the science as any living psychologist, and although certain other psychologists have made contributions which are more important than any one of McDougall's, yet the

number and range of contributions would give McDougall high rank. But, as a matter of fact, McDougall is not so well known to the public through his contributions to scientific psychology as he is through the instinct theory which he has elaborated.

McDougall views the instinct, not as an abstraction, but as a concrete force, which expresses itself in bodily activity, but which cannot be defined in terms of reactions or bodily activities. From his earlier writings, he has sometimes been understood to mean by "instinct" the emotional state which accompanies instinctive activity. But in his last book he makes it clear that such is not his meaning. The instinct is definable only in terms of purposes, and purposes are apparently not due to physiological mechanisms, nor dependent on external stimulation, but are original activities of the soul. As might be expected, McDougall alligns himself philosophically with the vitalists, and heartily condemns the point of view from which instincts are considered as abstractions, labeling that view as "mechanistic."

The general disposition of scientific psychology today is to leave the debate over vitalism and mechanism to the philosophers and philosophical biologists, refusing to let the question trouble our psychological work, and refraining from basing our interpretations on either assumption. Most of us,

I am sure, would as bitterly resent being classed as mechanists as we would being classed as vitalists: at any rate, we would deny that such classification has any more importance for psychology than our classification as republicans or democrats. But for McDougall, this is an important matter, and we must remember that he bases his psychology on principles which he declares are anti-mechanistic, that is, vitalistic. He goes even further than this, and declares his belief in a soul, which actually functions in psychological activity, and as I now understand him, the various instincts are the several ways in which the soul expresses itself in the bodily life. These instincts are modified in their expression by habit-formation, and by stimulation from the environment; but throughout these modifications of experience each instinct remains forever the same, and distinct from all the others. If I may give an analogy which is my own, not McDougall's, I can say that the instinct is like electricity, which may be shunted here, or shunted there, may express itself now in rotary motion, now in lighting the lamp filament, and now in the flaring arc; but remaining in all its manifestations the same energy.

The implications of this theory were first developed by McDougall in social psychology, and only recently in general psychology. And the social development was received, in America at least, with

great enthusiasm and has had an extended vogue during the last fifteen years. McDougall's textbook, *Social Psychology*, has run through thirteen editions, and has been widely used in courses in psychology, education, sociology, and ethics.

The reasons for the popularity of the instinct psychology are twofold. First, McDougall's book was the first social psychology written by a psychologist. Psychologists had entertained the view that there was such a thing as social psychology, but no one had been able to pin it down. The texts offered by sociologists, historians, and political theorists were sometimes interesting, but they weren't psychology. Second, the details in the working out of McDougall's scheme fitted in well with the conventional discussion of instinct; and the majority of those who used or approved the book didn't understand McDougall's theory at all, but supposed he meant by instinct what Thorndike and some other psychologists meant by it. Dewey, for example, had this impression, and proclaimed that Thorndike and McDougall had at last put social psychology on the scientific foundation of the instincts.

The formal use of the instinct hypothesis is, of course, obvious. If you want to explain some social phenomenon such as war, you refer it to an instinct. There is a "pugnacious instinct"; and there you have an explanation. This line of ex-

planation is more impressive when you adopt McDougall's conception of instincts, but it also satisfies many who have used the term in a looser and vaguer way.

The instinct psychology is, in effect, another manifestation of the same tendency which is exhibited in the old faculty psychology, and in the Freudian system: a tendency into which we all drop from time to time and which requires constant circumspection to keep out of. You notice a certain common characteristic in a group of phenomena; then you abstract that characteristic, give it a name, and explain the phenomena by saying they are manifestations of that abstraction you have named. The faculty psychology explained cognition or knowing by saying that it was the work of the cognitive faculty: a statement which may be good description, but which is not explanation. The old phlogiston theory of the physicists was another instance of this type of verbal explanation. So, the instinct psychology, noting that certain acts are involved in fighting, or lead to fighting, designates this common feature as pugnacity, and explains the actions as expressions of the "pugnacious instinct." The instinct, in short, rapidly became a venerated icon in psychology, accepted by introspectionalists, behaviorists, and common, or garden psychologists alike; and was believed in, in as great a variety of forms as is usually the case with icons,

until a stone the present writer hurled at it in 1919 precipitated a general disturbance, and the instinct became not only repudiated, but execrated. In plain language, the instinct is now not only very generally rejected as an explanatory concept, but is, by some extremists, repudiated even as a useful abstraction, which is unfortunate.

The more practical point of view which is rapidly gaining ground is best stated by reference to the critical terms. "Instinct" is a useful abstract term, referring to the undoubtedly innate or hereditary basis of all reactions and activity. When we wish to emphasize the hereditary basis of any reaction we refer to it as "instinctive," but we do not assume that any action of an animal after emerging from the uterus or hatching from the egg is purely instinctive. If any such are, the fact remains to be demonstrated. As for the "instincts" in the plural, we admit that they are arbitrary classifications of actions, at best classifications made to suit the purpose of the psychologist, and subject to reclassification when such reclassification is practically convenient. They may be useful for reference, but no more "explain" psychological phenomena than a filing system in the office of an insurance company explains the business of insurance.

In so far as it is convenient to discuss the activities of human beings in terms of two instincts, then there are two. But if it is more convenient to dis-

cuss human activities in terms of 57 instincts, then there are 57. The term instinct means nothing more than this in the actual facts of psychology, and the hypothesis of an "instinct" of a casual sort belongs, like the Freudian "unconscious" to the field of religion, not of science.

The author of Ecclesiastes, and other pessimists have described life as a series of vicissitudes. But in spite of the ills which flesh is heir to, we do grow up. And so does psychology. The crises of introspectionalism, of behaviorism, of Freudianism, of instinctivism, have been passed successively, and in fact rapidly. Speculative theory is, after all, a side issue in psychology, and the scientific method of tentative working hypotheses and experimental tests prevails. In the great field of general psychology as well as individual psychology we deal with facts, and as the science of psychology becomes more and more distinct and unified, the theoretical problems which the other sciences thrust upon us become less and less conspicuous. But at present, the psychologist needs to be somewhat skilled in speculation in order to avoid it efficiently.

CHAPTER III

PSYCHOLOGICAL FACTORS IN SPIRITUALISM

According to the opinions of many interested persons, a great wave of spiritualism, and revival of interest in the occult in general, has swept over England and America in the last few years. Whether this is quite the case or not, I am not sure. It may be like the reported increase in bow-leggedness among our young girls, which is not due to any intrinsic change in the form of the nether limbs, but merely to an increased willingness to display to the public gaze that which was sedulously concealed a decade ago. I myself am inclined to believe that there is no greater interest in spiritualism, and no greater tendency on the part of the public to accept the reputed phenomena and proofs of the occult, than there has been for the last thirty years or more; but that there is now less hesitancy over the admission of interest, and less fear of the results of confession of faith.

However this may be, the present situation is one of great interest to the psychologist, since it offers the chance of adding to our knowledge of human nature, and since it may also afford an opportunity for real social service in the way of work

in mental hygiene. It is clear that if any positive help in the situation is possible, such help must come from the psychologist.

Three phases of the problem which confronts us are especially important, and I shall restrict my discussion to these three phases, without attempting, in the limits of my time, to consider the larger and more ultimate questions to which these three phases may be related. The three phases I have selected may be indicated by three queries.

(1) Why are people in general so eager to accept the claims of spiritualists, in spite of the facts that (a) these claims have not been authenticated, and (b) if these claims were authenticated, they would throw very little light on the question of immortality?

(2) How is it possible that some men of good reputation, in certain fields of science, can endorse the claims of spiritualists if these claims have really no scientific backing?

(3) Are any of the mediums sincere in their claims regarding the origin of their messages; or, in other words: is it possible that they may be themselves deluded?

In considering these queries, it is advantageous to take the second one first.

If we run over the list of scientific men who have openly accepted the claims of spiritualism in some measure, we find that it includes principally mathe-

maticians, physicists, and astronomers, with some workers in lines such as engineering, which are closely allied to these sciences. The scientific proponents of spiritualism whose names will first occur to the average person are: Crookes, Lodge and Barrett—physicists; Crawford — engineer; and Flammarion—astronomer. If you go farther in the investigation of personnel, you will find more men from these classes, with a few medical men of little eminence scientifically or professionally, and practically no psychologists or biologists. One thinks of course of William James and Alfred Russel Wallace in the past: both brilliant men, and both given to speculative interests rather than research. Perhaps James was converted in his old age: I do not know where he really stood, although he was keenly interested in spiritualistic phenomena. But it is a striking thing that one can find in the past only an occasional psychologist mildly committed to spiritualism, and find only one among living research psychologists: while practically all the scientific men who stand before the world as believers in spirit communications or in telepathy or other occult phenomena, are in the ranks of physical science.

I do not mean to imply that the majority, or even a large minority of physicists, mathematicians, and astronomers are believers in the occult. On the contrary, the number of those who accept the occult

are relatively few. Yet it is a matter of great importance that practically all who do accept it, and who can be classed as scientists, do come from these ranks. It is my observation further, that among workers in science whose names are not known to the general public, the same rule holds, and that the believers in the occult are found almost without exception among the physical group.

The importance of this fact cannot be lightly set aside, when it is proclaimed that eminent men of science accept telepathy, spirit-communications, or telekinesis: for in it is to be found the explanation of that which misleads the public. Science is a highly specialized field, and the training a man receives in one department does not necessarily fit him for work in another department. The training of the specialist in mathematics and physics does not directly fit him for work in such fields as that of psychology, although it gives an excellent foundation for such training. In fact, the more intensively he specializes in mathematical physics, the less likely he is to obtain training in psychology. Moreover, being for years accustomed to the handling of data which can be treated with mathematical precision, and habituated to the observation of phenomena which can be repeated at will under rigid control and subjected to mechanical analysis, he is at a distinct disadvantage when he turns to the consideration of the phenomena of

living organisms, where different methods and different techniques are required and where so many of the factors cannot be controlled. In these cases is demanded the training and the skill of the psychologist, accustomed to the observation of phenomena whose regulation and laboratory control is difficult, and to the handling of data which cannot be mathematically treated.

The worker in physical science, moreover, is habituated to the trusting of his sense perception with very simple corrective processes, and to reliance on the observations of others. His training in these lines is therefore a negative, rather than a positive asset, and in the study of many of the phenomena of human behavior, he is just so much handicapped.

I do not mean that the physicist is *necessarily* incompetent to make psychological observations; on the contrary many physicists, from Helmholtz down, have been highly qualified in this direction. But this is not because of their technical skill in physics, but rather in spite of it, and because they have also cultivated skill in methods other than those of physics.

In short, the training of the physicist and the mathematician does not fit him for the work of a detective or that of a psychological observer, and does not guarantee his opinions on matters connected with these lines; but rather raises a presump-

tion against him. This the public does not understand, and therefore the public supposes that because a certain individual has an international reputation in mathematical physics, his judgment on matters of international law, or internal medicine, or spiritualism, is worth more than that of the average educated man. Which, of course, it is not.

The best combination for investigation in psychological research would be the joint work of a trained psychologist and a Burns detective. Both of these are trained to deal with human behavior, though in somewhat different ways. Failing this combination, the psychologist alone may be employed, and, if he is not available, a keen, hard-headed business man should take the job.

The consideration of the appeal of psychic research to the "scientist" is therefore not a topic which we need to consider apart from the general appeal to the public. After all, the scientists to whom spiritualism and other occult theories have appealed, are in these respects precisely on the level of the general public, and their opinions are, if anything, less important than those of business men, manufacturers, and politicians. It is a sad fact that men who achieve in some one line a success that makes their judgment in matters belonging to that line exceptionally weighty often delude themselves in the belief that their opinions in other lines are also weighty. Unfortunately the public

is frequently ready to share the delusion. This should be a lesson to all of us.

In considering why the public, or a certain portion of it, accepts the spiritualist's claims, when the expert investigators of these claims do not—and we must remember that psychologists, with the lone exception of McDougall, accept neither spirit communications nor telepathy—we must emphasize the fact that the attempts to demonstrate the reality of the phenomena which the spiritualists claim have never resulted in any scientific proof.

It is true that the late W. J. Crawford, a mechanical engineer in Belfast, whom I mentioned, has published elaborate results of investigations on a medium through whose agency tables were lifted in a mysterious way, and that his conclusions were that no ordinary explanation would suffice for these phenomena. It is also true, however, that Dr. Crawford's methods of investigation, which he details with great care, were defective at just the essential points of such investigations, and that Dr. Crawford's suicide apparently followed his discovery that he had been deceived in a humiliating way by his medium. If you consider the cases cited by Sir Oliver Lodge, or Dr. Funk, or any of the serious, unskilled investigators of mediums, you will find in all cases that information is lacking on just the points which are most vital. And you will find also that in every investigation in which a trained

psychologist has control, the claims of the spiritualists are not substantiated.

There are several reasons why unskilled investigators obtain deceptive results. In the first place, the unreliability of testimony, so well known to the lawyer and the psychologist, is seldom taken into consideration. In his investigations into the celebrated case of the "Rhode Island girl," Münsterberg found that several witnesses of a certain test had sworn before a notary to a statement concerning a vital point: but upon being confronted with further evidence, they all admitted that the statement was false. The reason they accepted the false statement in the first place was that they did not know that the point involved was of any importance.

Only recently there came to my attention a fresh illustration of the fallacies in this sort of testimony. One of my students, having attended the performance of a professional prestidigitator, reported positively to me the next day that the clairvoyant this professional exhibited had described correctly an object in the pocket of the student, which object was neither seen by, nor described to, the prestidigitator or his clairvoyant. He reported also that the clairvoyant read correctly questions which persons had written and sealed before coming to the theater, and which did not leave the possession of the writers. Knowing that neither of these feats

had ever been performed before competent witnesses, I cross-examined the student, but failed to shake his testimony. I then went myself to witness a performance of this professional and his clairvoyant, and found that they did neither of the feats reported, but exhibited the good old tricks in a way differing but slightly from the traditional methods.

The question therefore arises: if testimony is so unreliable, how can we acquire any evidence whatever? And the answer is: we can acquire it only in the way in which evidence is obtained in all scientific work; by employing trained observers who have prepared themselves in advance to observe certain phases of the occurrence, and to judge whether certain definite things do or do not happen.

The difference between casual testimony and scientific report can be illustrated from the running down of a pedestrian by an automobile at a street crossing. If an accident of this sort has occurred, the testimony of casual witnesses as to whether the chauffeur sounded his horn at a certain moment, or whether the unfortunate pedestrian turned back after starting across the street, is subject to grave error, and must be carefully checked by other circumstances, if admitted at all. If, however, such an event were deliberately prearranged, and witnesses posted to observe whether certain details should or should not occur, being definitely prepared to watch for these details, the testimony

would be found to have a high degree of reliability. This is precisely the sort of observation which is made in scientific work, and the skill of the scientist consists in the ability to analyze problems and decide upon the possible details for which to look, as well as in specific training in observing.

Unskilled analysis of occult phenomena usually goes astray because of ignorance of the important points. The observer is not watching a particular detail of the performance, because he does not know that that detail is important: hence his subsequent report, when questioned concerning that detail, has little value.

It is sometimes true that a little knowledge is a dangerous thing. There are many different trick slates with which slate-writing is done. I have had six different types of slate in my hands, and there are still more. An investigator who is familiar with one or two of the methods or slates, is frequently unable to detect the trick when done some other way, because he is watching for the particular trick with which he is familiar, and overlooks the one employed. This, however, is merely a special case of ignorance of what to look for. Somewhat the same conditions apply to the familiar mind-reading stunt as done on the vaudeville circuit, for the performances of which there are a number of different devices.

The investigator of so-called psychic phenomena

needs to be familiar with the general field of sleight of hand, and technical mechanical devices employed by professional mediums and prestidigitators: and he needs to be keenly aware that new tricks and new methods are constantly being devised. (There are, or were before the war, two concerns in the United States which did nothing but manufacture appliances for the use of magicians and mediums.) The investigator must in addition possess a large fund of information in the field of psychology, particularly in regard to the physiological bases of conscious processes, or he will not go far. It is sufficient to say that in every case in which such a competent investigator has been allowed to examine fully into alleged phenomena of spirit communication, telepathy, or telekinesis, the result has been the discrediting of the medium's claims. A striking instance was the investigation of Eusapia Palidino, who mystified the physicists, anthropologists, and laymen of Europe and America, but who collapsed completely as soon as American psychologists conducted the investigations.

I will be asked, of course: "Well, then, how do you explain such a case as this?" and then will follow a tale of a dream that came true: a table that lifted without hands or feet: a sealed letter read: a message written on a sealed slate: a person's name spoken by a medium at first sight: or some other instance from an endless list of miraculous

occurrences in which so many people believe. Of course, we don't try to explain them. We know that there is no proof of such events having happened. Either something essential has been omitted in the account, or something added, or both. We know this because, in the first place, no such events happen when a psychologist is around and on the job, and because in so far as it has been possible to go back over such reported cases and investigate, critical errors of the sort mentioned are always found. We face the situation, therefore, in which we are asked to believe a miraculous thing because we can't investigate it to prove it false, although every case of the sort which has been investigated has been found false. We cannot accept such miracles without admitting that the methods of science are wrong from top to bottom, and that there is no known method of obtaining true knowledge. We cannot admit that, because the actual achievements of scientific method in many directions are the proof of its value.

This is not the place in which to engage in a prolonged exposition of the methods of science. It suffices to say that in regard to so-called psychic phenomena, science makes the same demands that it makes throughout its whole field: it demands the same sort of evidence here that it demands of Einstein's theory, or the theory that bubonic plague is transmitted by fleas, or the claim that benzyl

benzoate will relax the muscles of the intestines: it demands a statement of the conditions under which the phenomena described can be observed by properly trained observers, and on none of these or any other points will accept mere anecdote or casual testimony, although it might be sworn to before a battallion of notaries.

Leaving out the consideration of telepathy and of telekinesis, and confining ourselves to the subject of spirit communications alone: We find, further, that even if we should grant that a selected part, if not all, of the communications which have been made by mediums, really come from "spirits," we would know little about what a "spirit" is, and nothing at all, from this source, about the continuation of individual personal existence beyond the grave.

Suppose we admit that the medium gets information from some source, and that the information is sometimes true: what then? What is the source? Suppose we grant as much as could be made out from the data presented, namely, that the source of the information is in some way connected with an individual who once lived, but is now dead. Is that person still living in the same old way? Or is merely some *effect* of his having lived, which is still reverberating in the universe? If we should grant everything the spiritualists claim as to the genuineness of their data, it tells us nothing whatever on

this point. If we study the character of the alleged spirit communications, and note the stupidity of large parts of them: the vagueness and incoherence of other parts: the manifest errors of others: and the very rare gleams of apparent sound intelligence and useful information: we cannot but compare the condition of the reputed "spirit" with the condition of senile decay in life. Just so the valetudinarian dodders and rambles, forgets and contradicts himself, with occasional gleams of sound sense. If we do not adopt the hypothesis that the person has ceased to exist, and merely left behind some effects of his previous existence: if we hold that his personality, or some fragment of it still exists, somewhere, somehow: then we must conclude that it is a pitifully decaying personality, disintegrating into mental chaos: a rotting ghost over which it were better to draw the veil of oblivion. If, therefore, we believe in the real immortality of the personal self, and believe that there is a value in that immortality, the acceptance of the discredited "evidence" of the spiritualists is a deadly blow to our belief.

Yet, in spite of the facts, a large group of the naive public, including Sir Oliver Lodge, avidly accepts the claims of the spiritualists. And this is a situation that we are called upon to explain.

It might be said that the cause is the general human tendency of man to accept any striking and

picturesque claim, concerning the impossibility of which he has no clear understanding. And we might point to the eager acceptance of political nostrums, of new and strange religions, and of popular philosophies of divers kinds. I might even point to the fact that recently, men of reputed intelligence in my community, even university professors, have bought stock in an oil venture which has not the slightest evidence of soundness. Against such a general explanation, however, we must point out a profound and often perverse scepticism on the part of the public towards new ideas and new projects, even when these novelties are strongly supported evidentially. Witness the past scepticism towards flying machines and towards wireless telegraphy, which was exhibited even by some of the very individuals who so eagerly accept spiritualism, and was tenaciously maintained until the last possibility of holding it was swept away: Witness the scepticism towards the need of tax reforms,—and I might add, towards the League of Nations. Obviously, there is no simple tendency to believe in theories just because they are presented for belief.

In credulous belief, there is involved something more specific, namely: a powerful drive of an emotional sort. In the absence of scientific principles, man believes that which he strongly *desires* to believe. He believes in the miraculous oil well be-

cause he is told it will make him rich, and because he wants very much to be rich. He believes in the statements of spiritualism, because he is told that these statements make it certain that he will live after death—and he very much wants to feel certain that he will live after death.

The author of a book published in 1918 expressed this very well, although we must assume that he did not clearly know that he was expressing it. The author is Conan Doyle, and the book is *The New Revelation*: the first public confession by the creator of Sherlock Holmes that he had become converted to spiritualism. In the first paragraph of the first chapter of that book, Conan Doyle says:

“The subject of psychical research is one upon which I have thought more and about which I have been slower to form my opinion, than upon any other subject whatever. Every now and then, as one jogs along through life some small incident happens which very forcibly brings home the fact that time passes and that first youth and then middle age are slipping away.”

The significance of this passage is strikingly clear. The author has been aroused to the fact that he is growing old: that *death* is approaching—the apparent end of all his values. He does not want to die: he wants to *live*: and as death approaches, he wants some certainty that he will continue to live beyond it. Hence, in the absence of any other source of certainty, he *must* accept the claims of

spiritualism. And you will find in his later writings that the life after death in which he finds belief is precisely the sort of life which he values most highly now, and which he wants to continue.

It is a remarkable thing, that whereas the millions of inhabitants of India fear immortality, and seek for means by which to escape it, millions in Europe and in America desire immortality most deeply, and seek for the assurance that they will possess it. One of the great functions of Western religion has been to convey this assurance, just as one of the great functions of Hindu religion has been to convey the assurance that life can be terminated, or if not terminated, can be made perpetually unconscious. In default of traditional religion—and traditional religion has lost its compelling power for many in the West, even for many who wear the vestments of the church—something else must be the life buoy: and that something else which supplies the need for assurance against death may be Christian Science or spiritualism.

The lusty youth and the vigorous maiden, reveling in the full possession of energies and faculties, may be interested in spiritualism as in palmistry, or cotillions, or moving pictures: as a source of amusement, or of thrills, or even of delightful awe. But your true devotee is the man or woman of failing faculties, and decreasing energies, who sees approaching inevitably the time when the golden

bowl shall be broken, and the silver cord loosed: when the wheel shall be broken at the fountain and the pitcher at the cistern; when the almond tree shall blossom and the grasshopper become a burden: when the sound of the grinding shall be low, and those that look out of windows be darkened; and when at last the mourners shall go about the streets. Such a one, seeing that dread day surely approaching, when that life which was so wonderful in youth, and which even now is so dear, is about to be snuffed out like the flame of the spent candle, and lacking the secure confidence of traditional religious belief, grasps frantically at even the poor pitiful straw of psychic research, and shuts his eyes to its futility and insufficiency.

To have the force of these facts borne upon you, you need only to attend spiritualistic séances, with your eyes open. I have seen the tables tip—and I have shown how they are tipped; I have watched the ouija board cavort; I have seen the medium retire to her cabinet, and seen the spooks come forth from it: I have seen the written message come from the medium's pen, and I have heard her dictate what the "spirits" have spoken to her; and I have had her revelations given to me in private sittings for cold cash. And in all this, the thing that has impressed me most is that people believe because they want to believe.

I have listened to the professional medium while

she gave me vague information about estates to be settled: "papers" to be signed; friends and relatives "gone over." Resisting the tendency to rise to her clever fishing and give her the information to give back to me, I have realized how easily, if I wanted to believe, I could get proofs: how by easy interpretation of the guesses I received, I could piece out a message; how easy it is to forget the things that don't "strike oil," and emphasize other things; and above all, how little dependence can be placed on the story a sitter tells me of what the medium actually told him, and what he told her. A sitter who is sufficiently ignorant, or who is sufficiently anxious to believe, can be profoundly impressed by the medium without her having need of recourse to the great card index system which is maintained in the United States, and in which you are listed, with all the information obtainable from *Who's Who* and many other sources, if you once gave your name to a medium belonging to the association.

I have watched one of the most widely known of the amateur mediums at work, with a private audience of sixty or more persons present: and I have marveled at the simplicity with which the desired interpretations are put upon the communications received, and the little cleverness or finesse required to put them over on an audience wishful to be con-

vinced of their other-worldly origin. Perhaps an illustration or two will make my point clear.

This medium, through whom a "spirit" has dictated several novels or stories, and a mass of poetry and miscellaneous prose communications, began with the ouija board, but later succeeded in hearing the voice of her "control." At this particular séance, a list of sitters had been prepared in advance, from the numerous applications received. As a name was called, the owner of the name came forward to a seat beside the medium, and shortly the "control" would speak to the medium's hearing alone, and the medium would dictate a message which might be intended for the particular sitter.

One name was called, and a lady who came forward received a message of cheer and encouragement in the most general terms. At the close she stood up and informed the assemblage that the message had a very definite application to her: that she herself had mediumistic "powers," but had been somewhat afraid of developing them: that the message meant that she should go ahead without fear and develop her "power." The message might just as well have assured her that her husband was not eloping with his stenographer, or that the gown her dressmaker was working on would turn out satisfactorily.

Another name was called, and a woman in the weediest of widow's garb came forward. After a

slight pause the medium dictated a message which began: "So this is communion! The chalice is put to my lips and I would drink, but it is empty! Oh God! How I thirst!" (There may have been a word or two more in here, but this is nearly exact.) The communication continued in this strain for a short time. Then the widow informed the audience that as she left the place where she had previously been sitting, to come forward, the thought uppermost in her mind had been of communion with her departed husband. Of course the medium could never have guessed this!

Further illustrations would be but repetitions of the same theme. In regard to the general importance of the "will to believe," in producing acceptance of the performances of mediums, amateur and professional, I might well sum up in the words of Florian Slappey: "It's the only thing there ain't nothing else but."

Perhaps the implication from what I have said so far might seem to be that all of the mediumistic communication is fraudulent, and that all mediums are frauds and cheats. This leads us to the final query of the three with which I began: and I shall commence the discussion of this by answering it with the statement that in my opinion, many mediums are sincere, at least moderately sincere, and that even some of those who deliberately cheat and invent in their messages, really believe that a part

of their communications comes from a source outside of themselves.

Please remember that in this I am considering only the mediums who give their messages in a *natural* way; who write, or speak, or otherwise communicate by means which are normal. Slate writings, trumpet messages, spirit photographs, mysterious rappings, are all fraudulent, as are all alleged physical effects without normal physical causes. If a medium claims that something is written on a slate without normal human agency, or articles moved about, or bells rung, without human or mechanical agency; or that voices or other sounds heard by sitters are produced by other than living human beings; she is a fraud, and nothing she produces is to be taken as other than deliberate fraud.

But there are mediums who make no pretense that their messages are not written with their own hands or spoken with their own voices, and some of these, I say, are sincere, in part at least. Even in the case of table-tipping and ouija-boarding, it is possible for the person who is really moving the board or the table, to be unaware that she is doing it. In these latter cases, however, I think it is at least rare that the person who really gives the message does not know full well that she is directing the movements, although the larger part of the energy required for the moving of the table or

board may be furnished by others unwittingly. As I at one time acquired a considerable facility in table-tipping, I speak with some authority on this subject.

The question, therefore, is: how is it possible for a medium to give messages, with the belief on her part that she obtains them from outside of herself, if they are really her own productions? I think the answer to this question is not only of considerable psychological importance in itself, but that it also helps to explain the hold which spiritualism has on the public. A medium who really believes in herself will in the long run more clearly appear to believe in herself than will a medium who is a conscious faker: and spiritualism could not obtain the hold it has if some mediums at least did not seem to believe in themselves.

A complete answer to this question would involve a discussion of thought processes which is entirely too long and tedious to be introduced here. For it is in the essential nature of the process of thinking, as a reaction process of a complex sort, that the answer is to be found. All that can be undertaken here is a general summary of the reasons why it is not difficult for a medium to be deceived.

Any speaker or writer who speaks or writes fluently may easily notice, if he attends to the process of speaking or writing, that the process is not necessarily a double one; of thinking *first*, and *then*

speaking or writing what has been thought; but that in many cases (especially in speaking), the thinking and the expressing are one and the same process. That which one speaks, in fluent speaking, is thought as it is spoken: one doesn't know what one is to say, in detail, until it is spoken. In many cases, the spoken result is even a pleasant surprise to the speaker: in other cases, an unpleasant disappointment.

Sometimes, it is true, in writing, one doubles the process, thinking over a sentence, or passage, and then writing it as a second process. Sometimes one does this even in speaking; but then it is usually a disadvantage, producing a halting delivery, or necessitating thinking what one is to say, when one ought to be listening to what someone else is saying. The efficient, normal method, is to speak and think in one process.

This fact is of great importance in the improvement of speech habits, and the removal of speech defects, such as certain types of stammering, but into these matters we need not go now. It is a fact because of the nature of the thought process, which is always a reaction process in the literal sense, and hence is most economically carried on when the thought reaction and the expression reaction are one and the same. To a certain extent, this economy is obtainable in writing; but to a more marked degree in speaking, since the flow of speech is faster

than the flow of writing movements, and the great vehicle of precise thought is the spoken word.

During fluent composition, the fact that ideas are not consciously manufactured, but *just come*, is often so striking as to impress even the experienced writer. To the psychologist, who has studied the mechanism of the thought process, this issuance of ideas, occurring sometimes in excellent logical and esthetic form, is understandable; and we know it is in accordance with the fundamental laws of conscious processes. To the person who knows nothing of psychology, however, these occurrences are astonishing and miraculous, leading easily to the conviction that the ideas come, not from her own mind, but from an external source. Hence comes the belief in inspiration and in the receipt of ideas from other persons.

The impression of an extra-mental source of thoughts is strengthened by the fact that fluency of speech is, in general, improved by a policy of non-interference with the ideas as they flow. This is the first principle of improvement in speech, especially in the removal of speech inhibitions. To the person who is not psychologically trained, the fact that when he lets his expressions come as they will, not correcting them, not concerning himself with their meaning or coherency, he may obtain a fluency and a style which is superior to his awkward attempts at self-conscious construction, is a

striking "proof" that he is getting the ideas from some miraculous source. Hence, it is very possible for a medium, amateur or professional, to be convinced of an outside source for her communications, and this is possible even in the case of mediums who frequently cheat when the "spirits" are not working well.

The detailed psychological explanation of the mechanism of thinking does not lead us to the assumption that thoughts come into the mind from the "unconscious mind." They don't come "from" *anywhere*, but are constructed in the mind in accordance with perfectly well-known laws. The introduction of an explanation in terms of a mystic "unconscious mind" is merely a device of those who do not understand the mechanism of the mind, and hence cannot find a real explanation.

In conclusion, I may point out that in the consideration of the medium's own delusion, which undoubtedly contributes largely to the spread of spiritualistic doctrines, we come upon the same fundamental factor which contributes to the acceptance by the public of that which they merely want to believe, namely, ignorance. The blight of spiritualism is to be combatted primarily by education in simple facts of scientific psychology.

CHAPTER IV

THE PSYCHOLOGY OF THE COMIC

I hope no one is reading this chapter under the supposition that there will be something humorous in these pages; for then indeed the situation would be comic, and the joke would be on the deceived reader. No, this is a very serious matter, this dissection of the comic, and the dissection has about the same effect on its comicality that the dissection of a watch has on the watch's time-keeping qualities, after the wheels and springs and pins and screws are spread all over the table. Furthermore, I intend to try to convince you that the psychology of the comic is indeed a very serious topic, as the makers of jokes have always known it to be.

I may say at the outset that I have really nothing fundamentally new to offer, and if I had, I should hesitate to offer it, since we are constantly impressed by the fact that what is fundamentally new in psychology is usually fundamentally wrong. I might add, that of course nobody expects anything new in connection with the comic. The analysis and conclusions which I am about to present are quite commonplace, and if you have not thought about them before in exactly the way in which I present them to you, you will undoubtedly grant

their conservatism as soon as you reflect upon them. All I can aspire to do is to bring bits and fragments together in a systematic way, and perhaps to convince you that the familiar views on this subject are really satisfactory, and that there is no need for the newer and bizarre theories which are sometimes offered.

In the *comic*, I mean to include a certain group of situations at which we laugh, smile or are amused. Not all the situations at which we laugh or smile are comic, and later I shall point out the non-comic ones, and attempt to indicate their relations to the comic. Perhaps if I slash boldly through the maze of terminology which has grown up about this subject, and say that by *the comic* I mean all those situations which are funny, I shall come near to the indication of my topic: but even this does not quite cover the logical needs. I shall therefore have to let the definition of the comic wait upon the analysis thereof. Terms are necessary servants, but sometimes they are stupidly inefficient, and sometimes they are actual obstacles.

I shall attempt to show, in the different classes of the comic, a certain uniform and essential characteristic, and thus lead up to the question why situations possessing this characteristic produce the laugh, or smile, or amused reaction in us human animals. I shall therefore examine the typical situations at which we are amused, bringing them un-

der such groupings as are convenient for our purposes.

1. The first, and doubtless the most primitive kind of the comic, includes bodily suffering and pain. These situations appeal especially to savages, and among civilized folks, to youths and children, although probably none of us are unresponsive to them. There are many accounts brought back by explorers from Africa, Asia, Australia and the islands of the sea, which impress upon us the reality of this savage characteristic. The sight of a drowning man in his last struggles will often throw a large group of savages into ecstasies of laughter: sufferings from wounds and poisons are vastly amusing; the hilariously comic effects of torturing a captive were frequently experienced by the red man whose lands we now occupy. Tales, more or less authentic, from the Roman amphitheater might be introduced here, if necessary. But we do not have to go to ancient or savage societies for illustrations. In the bull ring at Barcelona today, the agonies of horses, led blindfold up to the bull to have their intestines ripped out, are mirthful spectacles. Tales from other lands might be told to show the essential funniness of the sufferings of animals, if the subject were not one from which we gladly turn aside.

Among us of Anglo-Saxon civilization we find the savage frequently enough, and even among those

classes and stocks where humanitarian ideas and motives exclude from adults the pleasure in suffering, the younger folks still show it. Not only do boys find something comic in the suffering of animals, and even of other children: girls also do; and tormented frogs and fish, and dogs to whose tails tin cans have been affixed, might frequently accuse the youthful human female. It would perhaps be going too far to say that the girl of three, whom I one day found engaged in stepping on caterpillars, and laughing gleefully as they were squashed out, was extracting mirth from suffering; yet the case is true to type.

2. A second sort of comic, perhaps less brutal, is found where the suffering is of a less serious nature. Such cases are those of minor physical injuries, and injuries which may roughly be termed mental, although the suffering in these cases is real and may be acute. Appreciation of this sort of suffering is well-nigh universal. Few are the persons, youthful or adult, who do not show some signs of mirth when a cat has its tail inadvertently stepped on and vents its pain in a yowl. Of course, the occurrence must be sudden, and apparently undesigned, else humanitarian tendencies have time to get in their work with some adults—but not with all. The man who slips on a banana peel and bruises a sensitive part of his person gets a laugh first, and perhaps sympathy afterwards. The woman who receives on

her dress a squirt of mud from the wheel of a passing truck, the man who happens to be under the scaffolding when a painter drops his bucket of paint, these evoke unmistakable signs of joy from passers-by. If in demonstrating before a class I have my fingers pinched in the apparatus, or receive an electric shock which makes me jump, the class is unanimously amused. Only the very serious, the very cultured, are immune to this sort of amusement, and even they are sometimes caught off guard.

3. A third class of the comic includes misfortunes, and defects, physical and mental. These, it is true, may be the source of suffering to the unfortunate person, but they seem to be comic quite apart from the potential suffering. The hunchback, the lame man, the man with facial deformities, the drunken man, the feeble-minded person, the insane patient, and the stutterer: these have been vastly amusing to generation after generation of our progenitors, even if they are not to us. And it is but a few years since the pitiful tramp was one of our stock comic characters, ceasing to be so merely because he has practically disappeared from the country.

4. In all these cases, the funniness is increased if the suffering, or the misfortune, happens to an individual in such a way that he is humiliated, angered, saddened, or degraded. The paint falling

on a workingman, in overall and greasy shirt, is less comic than that falling on a man dressed as a dandy. The young athlete chasing his hat in the wind is not so funny as the fat bald-headed man in the same circumstance. Sometimes where the individual is humiliated in the eyes of others, but not in his own eyes, the humor is more "intriguing," as the newspapers used to say. Such is the case with the dignified man who on April 1st wears, all unwittingly, on the tail of his coat the placard reading, "Please kick me." So likewise with the stout ladies whom we saw, a few years ago, navigating the streets in hobble skirts.

5. A fifth class, of *moral defects*, might be added. Certain types of men and women are keenly amused at the beginnings of vice on the part of young people. Perhaps the mirth aroused even among cultivated people, by a child who naively utters profanity or blasphemy points to this class also. The appreciation of moral degradation is much more widespread than most of my readers would readily admit. A situation which has been many times employed upon the stage, and which succeeds in arousing great mirth, especially in a highly cultured audience, is that in which a virtuous young man at last falls from the straight and narrow path.

6. The sorts of the comic so far described are *accidents*, or at least, we have not assumed that they were more than accidents. That is to say:

except for the first, the most brutal sort, we have not assumed cases which the person amused has himself contrived. In many cases, however, there is of course intentional, and often deliberate, ordering of the circumstances so that suffering or misfortune comes to the comic person. You, for example, place the banana peel for the man to slip on; you pull the chair out from under someone about to seat himself; you nail the half dollar to the sidewalk, that some one may be fooled; you send the timid man the telegram "all is discovered, fly at once." If the manufacturing of the comic situation is unpremeditated, done on the impulse of the moment, we call it *horseplay*; if deliberated, *practical joking*. Undoubtedly, for some individuals, this sort of comic situation is funnier than the parallel accidental comic. The reason for this will appear later.

The foregoing are elemental forms of the comic, agreeing in one respect; in each situation someone is *lowered* or *degraded*: it may be physically or it may be mentally, it may be morally, it may be in power and standing socially. Many of us would like to persuade ourselves that we are above the appreciation of this form of the comic, and some of us succeed in humbugging ourselves. Some actually are so saturated with esthetic and moral ideals that these forms of the comic do not excite their risibilities. These refined individuals may, how-

ever, respond to another class of the comic, in which the suffering, or defect, or misfortune, is not real, and not even presented as real, but is presented as obvious fiction.

7. Some of us have developed such sympathies and considerations for other persons that we cannot enjoy their degradation. If the instinctive tendency exists, however blocked by humanitarian habits, the primitive reaction may be evoked if in some way the obstructing forces are themselves blocked. This is frequently done through the suddenness with which a comic situation arises, as I have earlier pointed out. But the same result may be obtained through the known unreality of the situation. Few individuals, even in a movie audience, would enjoy seeing the comedian really struck over the head with a sledge hammer, or perhaps I should say that if they did enjoy it, they would relish it as fit punishment,—not as comic. But these same persons do enjoy the situation in which, so far as the eye can see, such a blow is delivered. They are able to give their impulses rein, and enjoy the situation, because they know it is not real. Likewise on the stage, the slap-stick comedians excite billows of laughter, because the audience knows full well that the blows produce neither injury nor suffering. If it were not too much of a digression, I should like to compare the ease with which such effects are produced on the stage and in

pictures, with the difficulty in producing them through verbal descriptions. The relation of the appreciation of the fictitious comic to the appreciation of the real comic is an important point, to which I shall return later.

8. Rising now above the class of degradation, or real misfortune, we come to a peculiar sort of the comic in which suffering is nevertheless essential. The type of this class is *embarrassment*. No one thinks of the embarrassed person as actually defective, or saddled with an infirmity: in many cases it is imputed to him as a commendable trait, and as a practical advantage. Of course, in other cases it may be an actual impediment in practical affairs, but this is not necessarily, or even characteristically the case. Yet the contemplation of the suffering of an embarrassed person is keenly enjoyed by the spectators. I doubt not that each one of you has at some time maneuvered to embarrass some one, in order to be amused at the results. In the fictitious comic, embarrassment is a factor much used. Many yarns that are spun depend for their humor solely on the construction of an embarrassing situation. Such for example, is the ancient story, occurring in many versions, of the man who lost his trousers while driving an old-fashioned one-horse buggy. After the loss, which is contrived in different ways in different versions of the story, he proceeds in outward decorum, having tucked the buggy robe

carefully around his waist and lower extremities. Unfortunately, he drives to a spot where, beside the road is a woman who has sprained her ankle, and who asks him to take her home. In some accounts, the woman is his fiancée: more often the latter's mother. The woman cannot get into the buggy without assistance. If the driver gets out to assist her—the story always stops at this point, having succeeded in creating, although in fiction, a situation of extreme embarrassment for the young man.

Here, perhaps you will say that my illustration is not carefully chosen; that we are here going over to another class of the comic, namely, the salacious, and also that my distinction between embarrassment and degradation breaks down in the illustration, since the situation is undoubtedly one from which future humiliation will flow if the ribald contemporaries of the young man find out about it. Perhaps both of these points are well taken, and I do not insist on the importance of the class, if it can really be distributed elsewhere.

9. My ninth sort of comic also is one which perhaps might be included under one of the earlier headings, but it has nevertheless certain features which justify its separate consideration. This is the sort in which the mention or introduction of offensive matters constitutes the comic factor. In such cases there may be some one present who is offended, or shocked, or whose feelings are in some

other way so injured that he may be considered as having suffered. Sometimes the comic situation is attained by rendering some one of delicate susceptibilities incapable of eating his dinner. In some cases, the situation is funny merely because someone's feelings *might* be injured, although no one so susceptible is actually present. The comic in these cases belongs to a type which we have not yet considered. To this type also belong many sorts in which salacious details are involved, and which we will consider later. As a mild illustration of the shocking type, I might repeat an obituary poem, said to have appeared in a Philadelphia paper:

A year ago our Willie died;
We miss him now, but all is well:
For some day, on the other side,
We'll meet our Willie dear in heaven.

The types of the comic so far described may now be summed up. The basis of each situation is a person, or sometimes an animal: either a real individual, or an individual presented pictorially or by description. This individual—or these individuals, since there may be several in the situation—are, or are presented as, suffering, or injured, or defective, or impotent, or stupid, or subject to emotional states which are generally recognized as unpleasant, humiliating, or in some other way disadvantageous or undesirable. Such factors may be summed up under the general term *inferiority*.

The comic situation, therefore, is in all these cases, the situation in which the inferiority of some individual or individuals is manifested or realized. To vast numbers of the human race today, in America, Europe, Africa, Asia, and the Pacific Islands, Charley Chaplin is the quintessence of the representational comic, because he is presented as physically defective, mentally degenerate, morally depraved, and financially impecunious. Moreover, he effectively degrades, humiliates, and reduces to impotence, other characters in his screenings.

There are, however, limits to the inferiority which is comic, and for each individual definite conditions must be met in order that the situations may not be disgusting, or pathetic, or shameful, or brutal, or otherwise remote from the comic. Charley Chaplin is not comic to many of you, because he is *too* inferior. And this raises the question: Inferior to what? What is the standard, with reference to which the comic is constituted? The standard is probably obvious to you already, but a few considerations will make its nature unmistakable.

10. A situation is rarely comic to one who is in the same situation himself (although there are exceptions noted below). If you are broke, impecuniousness is not apt to be funny to you. If you are stupid, an equivalent degree of stupidity does not amuse you. If you are humiliated or suffering pain, then pain and humiliation of the same sort are dis-

tinently not laughing matters. There are exceptions—but these exceptions are explicable in a simple manner. In general, we may conclude, one does not laugh at one's self. Your own inferiority is not a comic matter to you. The development of the capacity to see a joke on one's self (what Brander Matthews calls the real "sense of humor"), is a rather complicated matter of the ideal comic, and in general this development is rather smaller than is sometimes supposed. In the great majority of cases we laugh at ourselves in rather a mechanical fashion, in order that the joke shall not become any worse than it is. By being able to see the joke, we assert for ourselves a sort of ability. We smile at our comic mistakes and mishaps—but inwardly we are gritting our teeth, and in the dark our smile is pretty small. Our "ha! ha!" when the joke is on us lacks the signs of enthusiasm and zest.

It is true that in some individuals this self-directed sense of humor reaches a high stage of development, and that these individuals are apparently able to enjoy jokes on themselves as thoroughly as if they were on someone else; but this development is not necessarily an advantage. In fact, as Brander Matthews has pointed out, it may be a very practical disadvantage in the business of life: and however likeable personally may be these men who see their own comic aspects, they are worsted in the struggle by the men with the Roose-

veltian attitude, who have the habit of taking themselves with the utmost seriousness, and never admitting the least bit of inferiority.

In appreciating a joke on yourself, if you really appreciate it, you look at yourself under two aspects. First, as the individual who is made to appear inferior, or unfortunate in some respect, and second, as an individual who in reality has no such defects, and whose great and comforting superiority is actually enhanced by the transitory appearance of inferiority which you are convinced is a mere accident.

In all other cases of the comic, the standard of reference by which inferiority is judged is unmistakably *yourself*. From this is revealed another reason why too great an inferiority may be fatal to mirthfulness. Perhaps you don't enjoy Charley Chaplin because you cannot admit the possibility of a comparison between him and yourself. You are unable to rejoice over an inferiority where no equality was ever considered possible.

The marks of the struggle for advantage over your fellows are evident throughout the comic. Mirth is a mode of rejoicing over your outstripping of your competitors. There is no rejoicing over those who never started in the race. Towards those who can never interfere with your success or pre-eminence, and who cannot even be imagined as your competitors, pity is the practical emotion.

Mirth, in its various forms, may be well described as the emotion resulting from your appreciation of your own superiority over another or over others. It is the "sudden glory" of Hobbes description: the triumphant feeling which in accordance with Darwin's suggestion may be traced back to still more primitive reactions.

Looking at the comic from the point of view of your own superiority, clears up the cases we earlier noted, in which an unfortunate, defective, or depraved person, finds mirth in the misfortune, or injuries, or depravity of others. In such cases, the effect produced by the lowering of a previously superior person is the same as would be produced by the lowering of one's equal. The transition is in the same direction, and the effect of lessening the inferiority you have keenly felt might be expected to be the same sort of emotion as results from the increasing of your own superiority, or the creating of a superiority where equality previously existed. "The wicked laugh when the righteous are brought low," says the Hebrew poet; and it is equally true that the impotent may be merry when the powerful man collapses. Even the downfall of a monarch of the prize ring is a source of glee to the flabby loafers. This explains the mirth which the victims of any form of vice experience in the initiation of innocent persons into practices which will eventually bring them to the same level of degradation.

We pass on now to the consideration of another sort of the comic in which there is no individual presented as inferior or degraded, but in which confusing or puzzling material is presented. This I should call the *ideal comic* in distinction from the concrete comic we have been considering. Typical of this sort is the *bull*, which involves gross exaggeration, as in the case of the man who declares that he "would never be able to get his new boots on until he had worn them a day or two"; or which involves confusing metaphors, as in the statement of the sailor that he had "once visited a country where they copper bottomed the tops of the houses with sheet lead." Paradoxes, of which the most magnificent is the statement that "all generalities are false, this one included," belong in the same category. In such cases, some intelligence is required to extract the real meaning, and the mirthfulness of the witty formula consists solely in the realization of one's own smartness in being able to do the trick, with perhaps the implication that some other person might be less smart. The best proof of this is found in the fact that when a joke is told in company, and some one in the group does not see the point, the mirthfulness of the joke is enhanced greatly for those who do see it.

I remember once telling an elderly lady the ancient gag which begins: "Why is a man making a call like a successful lover?" You may remember

this one; it goes on: "First he comes to adore, then he gives the bell a ring; then the maid takes his name, and if he doesn't find her out he's taken in." Some time later, this elderly lady was overheard explaining the riddle as follows: "First he comes to the door, then he rings the doorbell, then the maid takes his card, and if he finds her at home he's shown in." Thus was an inane and threadbare gag transmuted into a thing of perfect joy, by finding a presumably intelligent woman who couldn't see through it. This same lady, in attempting to spring another hoary conundrum, made it equally funny. "Why," she asked, "did they not play cards in the Ark?" The victim having properly "given up," she announced the answer: "Because Adam sat on the deck." And noting a puzzled look on her victim's face, she added, "Why don't you laugh? I think it's very funny."

I shall make no attempt to classify, or to illustrate in full, this sort of the comic. It runs all the way from the pun, which is perhaps the lowest form of wit because nobody could possibly fail to see through it, up to such constructions as Bill Nye's famous combination of two fragments into:

O woman, in thine hour of ease,
Uncertain, coy, and hard to please;
But seen too oft, familiar with thy face,
We first endure, then pity, then embrace.

A combination which has mystified not a few illiterates.

A great deal of wit and humor involves mixtures of this ideal comic with the more realistic type we have earlier described. I might illustrate here the story of the young lieutenant who was a source of irritation to his commanding officer because of his tendency to bet on anything and everything, coupled with an uncanny habit of winning his bets. Upon a change in the commanding officer, the old C. O. privately warned the new one concerning the pernicious tendencies of the lieutenant. The new commandant declared that he, having his wisdom teeth and being hard-boiled, would take the rascal down a few inches.

On the first day of the new C. O.'s duty, he took occasion, in conversation with the lieutenant, to mention his reputation for wild betting. The lieutenant acknowledged the characteristic. He had, he said, an uncontrollable tendency toward freak betting. "Why, right here," he said, "I'll bet \$25 you have a crescent-shaped scar between your shoulder blades."

The C. O. saw his chance to score and accepted the bet. Retiring to a place where official etiquette would not prevent, he removed his jacket and shirt, showed no scar, and collected the money. He immediately wrote to the old C. O., relating his triumph, and telling him how easy the lieutenant really was.

He received by return mail this reply: "You damn fool, the young scamp had bet me \$50 he'd make you take your shirt off the first day."

One characteristic sort of mixed humor is vindictive, occurring as satire, or ridicule. In many instances of this sort, there is a previous animus or enmity against an individual, race, creed, or type, and the comicality consists in the lowering of this individual, race, or creed, as well as in the wit. Jokes on the Irish, the Scotch, the Jews; on Christian Science, on William J. Bryan, and so on, belong under this category.

Let us now return to the question of the profane and the salacious in the comic. You have doubtless noticed how the introduction of the words *damn* and *hell* on the stage increase the effect of what might otherwise be so faintly mirthful as hardly to "get over." To a certain extent this is doubtless due to the appreciation that someone might be shocked by such language; but he who laughs is not shocked,—that is, he is superior. This is not the whole story, however. In some cases the profanity, or the cursing, is merely a part of the necessary material out of which a total situation is built, and it is the total situation which is comic, the wicked material contributing nothing directly, but being efficacious through its appropriateness to the other material. Two mild illustrations may suffice to make this clear.

There is the story of a deacon who drove oxen and whose language frequently waxed strong, as the language of ox drivers will. The incongruity between the pious offices of the deacon, and his lurid haranguing of his ox team so impressed other members of the congregation that they finally insisted upon the parson's remonstrating with the deacon. The parson liked not the job, but finally did go to call upon the deacon, and worked the conversation around to the point of interest. The deacon quickly caught the drift of things and anticipated the parson's rebuke by defense of himself, winding up with, "You know, parson, I'm a plain, blunt man, and I will call a spade a spade," to which the parson replied, "I'm so glad to hear you say that, brother, for I did fear you would call it a *damned old shovel*."

In other cases, the strong language is of importance as indicating the emotional state of some character of consequence to the plot or story. The following illustration will make this point: A man afflicted with stammering went to a school in a northern city in which they teach a method of beating time with the hand or finger, the stammerer "beating out" his words in that way. After taking the course, this man returned to his native city and complained as follows concerning the failure of his treatment: "Of-course-I-can-talk-this-way,-but-dammit-I-don't-want-to-talk-this-way."

A great deal of the comic material of the stage, the movies, comic drawings, and printed and oral stories, involves salacious elements. In some of these cases, the salacity is of importance solely because it is an integral part of the material out of which the general plot or situation is built. Just as a funny story may be built around a horse trade, although there is nothing intrinsically comic about trading horses, so a comic situation may be based on sex activities, without assuming anything intrinsically funny in such activities. The stories of Boccaccio are striking examples of this, and one of them, which was re-enacted not long ago in an American city, detail for detail, will serve as an excellent illustration. A gentleman, who suspected his wife of undue tenderness towards another man, decided to lay a trap to test his suspicions. He therefore announced in advance that he was going to New York on a certain evening, and on that evening carried out his announced plan so far as to leave his house with his luggage, and go to the railroad station. But from the station he doubled back to his domicile, and peeking in the dining room window he saw his wife and the third angle of his domestic triangle, eating supper together. Desiring to confront them inside the house, the schemer proceeded to crawl in through the pantry window, but in so doing slipped and fell, knocking over some articles with a great clatter. This drew

the wife and friend upon him, and pretending not to recognize him, in spite of his protestations, they together beat him up so that he had to be taken to the hospital for repairs.

Some obscene wit and humor may doubtless be accounted for by the offensiveness of the material employed, either to actual listeners, or to potential ones, in accordance with principles we have earlier discussed. There still remains over, however, a mass of the comic which depends on the mere pleasingness which the salacious in itself has for many persons. While this salacity is not really comic, it produces an emotional reaction which is closely akin to amusement, and adds to the total emotion, even acting in some cases as a complete substitute for amusement. There is nothing of which the human male has been more vain throughout the extent of history than of his sexual capacity, and salacious references, which remind him of his sexual powers, produce a pleasing feeling of superiority, particularly if his sexual life is morbid.

We must not overlook in this connection one fact of wide importance, which is that a comic situation must be built up of material which is both intelligible and interesting to the spectator. The composite verse I quoted from Bill Nye has no comic aspect to the person who does not recognize the two component fragments. One would not expect the average theater audience to be vastly amused by a Bernard

Shaw comedy. Many of the lewd jokes in Shakespeare's plays pass entirely over modern heads. Now, matters of sex are not only interesting to persons of all degrees of education, but they are also very intelligible. Perhaps one reason why the theme of almost every stage comedy which rises above the "low-brow" or "custard pie" type, is adultery, is to be found in the fact that the situations thus developed are intelligible, and the emotional developments understood by a wide range of persons who could not understand situations built on themes of more limited appeal.

I have now covered only one part of my topic, in answer to the question as to *what* we laugh at; the second question, as to *why* we laugh at it, I shall have to treat more briefly. The comic is always that which enhances one's appreciation of his own superiority, but not all suggestions of superiority are comic. The marathon winner, falling across the finish line, keenly appreciates his own superiority, but is not amused. The winner of any contest, and the one who, if not engaging in a trial of capacity, yet feels his muscles, or "feels his oats," is pleased at his superiority over others, and over environmental attacks: but the pleasure is not funny. Yet in all such cases, the characteristic expression of pleasure is very similar to that which comes from the comic: laughter, smiles, and less definitely

nameable accompaniments. All triumph is alike, and the instinctive expressions of its realization are much the same. Following the suggestions of Darwin and Spencer, we may look upon the expressions of amusement as a survival of the reactions which naturally follow a life and death struggle in which one has triumphed over his adversary—laughter is strikingly like the triumphant panting of the nearly exhausted victor—or as a survival of reactions preparatory to battle—the smile suggests the ferocious grimace, and may be degenerated from it. These are interesting speculations, but do not greatly hold our interest. However the reaction tendency may have developed in the first place, it is transmitted in the human species in fairly definite form: One type of reaction, for those aspects of triumph which are of practical importance in the struggle for existence, and a slightly differing type for those appreciations of superiority which are of less vital importance, and which we call appreciation of the comic. These two shade into each other by insensible gradations, and are mixed together in many situations which we class as comic. In the vindictive type, the salacious type, as well as in the lower and more brutal types, practical self-congratulation, the feeling of superiority in matters which are intensely important to the individual, may predominate over the truly comic appreciation.

The vital point now remaining concerns the exact

element in the comic reaction which differentiates it from the reaction of triumph in general. Let me confess at once that on this point we have nothing but speculation, and speculations are not important except to the man who uses them as a basis for experimental attack. This is then the matter which must be left for experimentation, and that it has been left so long is something we may regret, but of which we need not be ashamed, since we do not conceive that it has such importance for practical life as to warrant our neglecting other problems for it.

The points we have discussed above, however, do have very important practical bearing. The question as to the effects which Mr. and Mrs. Jiggs and the other comic strips have on the children who so thoroughly enjoy them; the problem of the various types of the comic which are offered us on the screen and stage; all these receive illumination as soon as we look at them from the point of view I have been presenting. There can be no doubt that to those who enjoy them, the comic strips and the custard pie comedies are actually elevating and refining, destroying the tendency to enjoy actual suffering and degradation just in so far as they form the habit of appreciating the fictitious; and that they prepare the way for appreciation of still higher forms of the comic.

In so far as we establish a tendency towards the

vicarious satisfaction of our baser instincts, through responses which are at least one stage higher than the primitive, in so far we prepare the way for a second modification, and make easier the acceptance of a still higher substitution, always assuming that the next higher substitution is offered. I have no doubt that the enjoyments typified by the comic strips are decreasing the actual brutality of our children, and I look forward confidently to a lessening of savagery throughout the world, due to the missionary efforts of Charley Chaplin and his imitators.

CHAPTER V

THE READING OF CHARACTER FROM EXTERNAL SIGNS

The relations between general psychology and individual psychology are important and not hard to grasp. Neither can be separated from the other in practice, but each has its set of problems and its complement of special methods. The problems of general psychology concern the determination of laws and principles applying to the human animal generally, which are either independent of individual peculiarities, or inclusive of these idiosyncrasies as definite combinations of general factors, not as exceptions. The problems of individual psychology, on the other hand, concern the discovery of those factors of difference between individuals; thus, ultimately, the description of the important respects in which each individual varies from other individuals, and in as far as classification is useful, the assigning of each individual to the class or classes in which he belongs. The specific methods of general psychology are included under the general term *experiment*; the methods of individual psychology under the term *mental measurement*. The most obvious relation between the two branches is through the fact that reliable mental

measures (commonly called *mental tests*) can be developed only through experimentation of the most rigorous kind, and the fact that general principles can be obtained only by taking into account the individual differences of the various reactors on whom experimental work is done. One of the most unfortunate and harmful details of the present enthusiastic movement in the individual psychology, in education, in industry, and in medicine, is the naive assumption that persons ignorant of general psychology and untrained in experimental psychology can develop and apply mental tests in a useful way without the careful supervision of competent psychologists. The deleterious results of such bungling work on children, for example, are apparent not only in the harm to the children and needless trouble and expense to which parents are put, but also in the prejudices aroused in the public mind against mental measurements as a result of the mistakes of amateurs. Equally unfortunate results are frequent in the legal, medical and industrial applications of amateur psychology. The general recognition of the need of individual psychology in commerce and industry in particular has led to the existence of a class of mere exploiters, many of whom reap large financial rewards from their practices, and whose eventual effect on the manufacturers and business men they victimize is to turn them against the application of real psychology.

Mental measurements have so far been developed to the point where effective determinations of general intelligence are made—determinations which are of value not only for schools and colleges, but also for commerce and industry. No psychologist claims that these measurements are completely satisfactory, and we all know that they are being constantly improved, and will be enormously improved in the future. On the other hand, no one but the psychologist knows the amount of time, labor, and personal training required for the development and standardization of even the simplest test. The public, impressed by the apparent simplicity of the materials, assumes that any one can make up a test, and the public is right so far: any one *can* make up a test, and almost every one *does*, but the tests are not worth anything. The public either does not see this, or, if it does see it, assumes that the tests made up by the expert are also worthless. For some of the confusion the psychologists themselves are partly responsible. For example, the nomenclature of “mental ages” as established by intelligence tests, which should never have been allowed to escape from the laboratories, has very much confused and prejudiced the public.

In addition to tests of “general intelligence” (which may most safely be defined as that which standard intelligence tests measure), tests for special intellectual capacities have been developed.

We can now measure ability to sustain and to distribute the attention, ability to perceive accurately details of various kinds, ability to learn, ability to avoid learning, and many other special abilities of this class. The field of such measurements is rapidly being extended, and it now requires merely the application of the labor of the trained psychologist to develop systematic tests for the special combinations of intellectual abilities required in any branch of any trade or profession.

But this is the limit to which mental measurements so far have extended. Emotional and moral characteristics are not as yet measurable. Yet we know that these characteristics are of immense importance in all the divisions of life in which we are measuring intellectual capacity. Even as concerns the candidate for admission to college, while it is important to determine his intellectual capacity, emotional and moral factors ought to be known. There is many a man who goes down or barely survives in college, whose intellectual ability is sufficiently good, but who will not work, or who will get into trouble because of moral delinquency, or whose scale of values is inadequate.

I do not say that we shall never be able to measure these characteristics by the methods of individual psychology; in fact, I think that ultimately we shall compass such measurement. A number of us are now at work on the problem of moral measure-

ments, and I think the prospects for development along this line are favorable. But at present we do not pretend to make standardized measurements of emotional and moral capacity.

Wherever there is a great need, attempts to fill it will be made; these attempts will not all be scientific, and not all made in good faith, especially if there is a prospect of fat remuneration. The historical development of medicine is an illustration of this fact. Medical practice developed long before there was any known basis for it, and the bane of the medical profession today is the tendency to apply something in cases where there is really nothing to apply—a tendency against which Osler and other medical leaders have protested emphatically, and with some success.

The past lack of scientific means of measuring intelligence, and the lack of scientific means of measuring moral and emotional characteristics, together with the real need for such measures, has led to the development of unscientific methods of mental diagnosis which are popularly designated as *character analysis*. These methods are based on the assumption that there is a close relation between the anatomy of the individual and his mental characteristics, and that the details of this relationship may be discovered by casual examination, without the aid of statistical methods or experimental procedure, by persons ignorant not only of

psychology but even of the rudiments of physiology.

The first systematic attempt at the development of character analysis was made by the phrenologists. The physiologist Gall early in the nineteenth century began to teach that the mental life is largely dependent upon the brain, especially upon the cerebral hemispheres. This fact was not widely recognized before the time of Gall, although it has become a commonplace since then, and Gall's work had a large influence in bringing this recognition about. But Gall and his disciples are also responsible for the introduction into psychology of several misleading conceptions concerning the relation of the brain to consciousness—conceptions which have retarded the development of psychology and which are being eliminated but slowly. Gall and his pupil Spurzheim developed a theory of the relation of the brain to mind which they called phrenology, which means literally the study of the intellect. These phrenologists believed that the different faculties or capacities of the mind were localized, each in specific portions of the cortex or outer surface of the cerebral hemispheres. They further believed that the relative development of each of these faculties depended upon the relative size of the portions of the brain in which the respective faculties were supposed to reside. Highly developed philoprogenitiveness, or love of children, for

example, was supposed to depend upon a cortex relatively thicker in the philoprogenitive area than is the cortex in the same area of a person less strongly philoprogenitive. Finally, since they supposed the conformation of the skull to agree with the relative thickness of the cortex it encloses, they assumed the possibility of diagnosing the development of various cortical areas by examination of the outer surface of the cranium. The surface of the head was accordingly mapped off into a number of small areas, each associated with one of the faculties in the phrenological list; and from the relative depression or elevation of these areas the phrenologist attempted to read the "character" of the subject.

We need not dwell upon the series of bold assumptions involved in this system, since, from the scientific point of view, the system is of historical interest only. Quite aside from the further development of phrenology as a technique, it had a profound and on the whole unfortunate influence upon the course of psychobiology for many years. Physiologists and psychologists fell into the habit of assuming that consciousness is dependent upon brain activity in a remarkably simple way, ignoring the complicated interrelations of the various parts of the nervous system, and ignoring the fundamental function of the total nervous system in the control of movements through sensory stimula-

tion. Moreover, both the psychologists and the physiologists accepted even the phrenological doctrine of the localization of conscious functions in specific parts of the cortex, although the functions as thus localized by the physiologists were not the "faculties" of the phrenologists, but a more generalized group, including the senses. It is only within the last fifteen years that psychologists have begun to reject the phrenological theory, and many physiologists still cling to it.

As an art, phrenology had a wide popular vogue and is still practiced lucratively in the United States, there being at least one school in which the system is taught. It has, however, sunk to a position of relatively minor importance, and has been largely supplanted by newer systems, in part derived from it, and in part derived from still older anatomical beliefs. In these newer systems little emphasis is placed upon the surface of the skull, the major stress being laid upon the contours of the face, upon the size and form of the nose, mouth, ears, brows and eyes, upon the color and texture of the hair, and upon similar anatomical traits.

In one of the most widely known systems, from which many other systems have been drawn, "conscientiousness" is indicated by a broad, bony chin; "benevolence" by a full, rolling, moist under lip; "love of home" by fullness of the soft part of chin just below the lip; "amativeness" by the thickness,

moisture and redness of the central part of the upper lip; "cautiousness" by an extremely long nose; "judgment" by a broad large nose; "observation" by a lowering of the brows at their inner ends and projection of the frontal bone at that point. Musical talent is indicated in this system by an ear of rounding form and fine quality, with a deep bell and perfectly formed rim. Mathematical ability is shown by squareness of the face bones, width between the eyes, and especially by the upward curve of the outer part of the eyebrow. The signs of acquisitiveness are a thick, heavy upper eyelid, with fullness and breadth of the nose just above the nostril. Sometimes an arched, curved or hooked nose indicates the same thing. But in this system the significance of many signs is modified by others; hence, the degree of development of a given characteristic is read, not from a single anatomical sign but from a group of anatomical details, to which I will apply the term *physiognomic pattern*. Thus, a certain relative form or size of one feature might indicate a certain mental trait, provided it is accompanied by certain other details of form, position and size of other features. Linguistic ability, for example, is shown by large bright convex eyes, fullness under the eyes, the rounding out of head above temples, full lips, full cheeks, full throat, wide mouth and chest, large nostrils, length from point of nose to tip of chin, with vertical, lateral and per-

pendicular width of concha of ear. The physiognomic pattern indicative of well-developed color sense is decided color of the complexion, eyes, eyebrows and hair, clearness of skin, and veins showing through.

By the use of pattern instead of single signs there is secured an elasticity of application of the system, which is of great importance, and to which I shall later refer.

The foregoing samples are drawn from a single system; but this system is one from which a number of variant systems have apparently been derived. There are many systems in use, all equally definite, all equally "successful." Some systems stick pretty closely to physiognomy; some add signs from the voice, posture, and the anatomical details of arms, leg and trunk. But all these systems agree in two points: They are in the main anatomical, and they are lucrative to their promoters.

The attempts to read character from anatomical signs have not, however, originated in modern times, nor have they been confined to professional character analysts. Evidences of popular associations between anatomical details and especially between facial and mental and moral traits are to be found in the literature of all peoples. "Let me have men about me that are fat," Shakespeare makes Caesar say. Confluent eyebrows have long been supposed to be evidence of a lecherous dispo-

sition; a long nose of meddlesomeness; red hair of passion; and so on *ad infinitum*. As an attempt made in all seriousness to evolve a scientific system of mento-anatomy, I may point to Lombroso's description of the criminal type. It is evident that we have here to deal with tendencies which are widespread, and which are by no means always operating in the interests of private profit. Yet it is the professional character analyst who forms the main problem, since it is his work which furnishes the most pernicious results.

It requires little investigation to convince us that the systems of character analysis now in use have no scientific foundation, and that if any one of them were in part valid, it would be a most marvelous coincidence. None of the authors of the various modern systems shows any evidence of knowledge of physiology or psychology, to say nothing of genetics; nor do they attempt to apply even the simplest principles of statistics or experimental procedure in arriving at their conclusions. Naive conclusions from selected cases at the best, mere guesses at the worst, are the sole means employed. A study of works on physiognomy strongly reminds the reader of the interpretations of the psychical researchers and the Freudians. Aside from this, the contradiction of system by system would give even the layman cause to doubt. If we consider the signs of the same character trait, such as "hon-

esty," we find it indicated in different systems by quite different signs. If we consider the same sign, such as the shape of the nose, we find it indicating quite different traits in different systems. And yet the claims of any one system to practical success are as well substantiated as are those of any other system.

Nevertheless, the incompetence of the existing systems does not dispose of the question whether there might not be a valid system evolved. In spite of the futile efforts of various would-be flyers, the airplane was invented. We must inquire therefore what possible basis there is for a system of character analysis based on anatomical signs. And we find the answer that there is no known basis on which such a system might be constructed.

We know that the exercise of mental and moral capacities does not change the gross anatomical details of the human being. (Some of the systems of character analysis assume the contrary.) That a man cannot, by taking thought, add to his height is true, and is an illustration of a more general law. No exercise of generosity, judgment, musical talent, malice or amateness can change the form of the nose, or of the ear, or the setting of the eyes, or the form of the brows. If training cannot develop anatomical signs, then the putative signs of character must be signs of inherited capacity only, showing the endowment of the individual in respect to ca-

pacities which he may or may not have cultivated and developed.

But the results of genetics to date give us no basis for assuming anatomical signs of inherited capacity, except in pure races or relatively homogeneous races. It is true that we may conclude from such signs as the shape of the eyes and the color and texture of the hair that a certain individual belongs to the Chinese race, and hence that he has traits of character common to the Chinese. But the Chinese race, although not an absolutely pure race, is one which is sharply distinct from the white races, and we may expect to find different racial characteristics, although as a matter of fact the characteristics usually imputed to the Chinese are probably due more to training than to heredity. A Chinese boy, brought up under white conditions, is surprisingly like a white boy mentally, although he retains his anatomical race characteristics. In the case of the negro and of other markedly inferior races definite racial mental differences may be admitted. But we must remember that these differences are racial, not individual.

The European races, however, are exceedingly mixed, being the products of the blendings of many stocks, and although it is possible that the original pure stocks may have had specific anatomical characteristics and also specific mental characteristics, we find no linkage of these characteristics in their

hereditary transmission after mixture. A remote ancestor of a certain man may have belonged to a stock which had long noses and also had violent dispositions; another remote ancestor may have belonged to another stock, having snub noses and great amiability. The man under consideration may, however, have inherited the long nose from the one stock and the amiable disposition from the other. This fact comes out most clearly in the blendings of the white and negro races. The features of the mulatto or the octoroon give no indication of the relative mental inheritance of the individual from his white and colored progenitors, although statistically the greater the proportion of white ancestry, the greater may be the probability of white intelligence.

It is possible, although not probable, that our feeble-minded whites inherit their mental defect from certain original pure stocks of low mentality which unfortunately became mixed with the other European stocks, but there are no anatomical signs by which the feeble-minded may be identified. Nor are there any anatomical signs of the criminal, Lombroso to the contrary notwithstanding.

It is true that there are certain exceptions to the generalizations I have made. Cretins, microcephalic and macrocephalic individuals and other distinctly pathological cases show anatomical signs of their mental deficiencies. So does a blind man

show that he is deficient in the visual faculty and the legless man show his deficiency in the faculty of locomotion. But these cases are due to specific defects, and have no bearing on the attempts to analyze and classify the common run of humanity. These pathological cases may be easily segregated, and character analysis contributes nothing to our identification of them. In the remaining bulk of the population there is no discernible principle of linkage of the mental and the anatomical.

Finding no scientific basis for the anatomical character analysis, we are now thrown back upon the pragmatic problem. How is it that these systems apparently succeed? And we must admit that they do have at least financial success, for many of the character analysts are making money from their practice on commercial and industrial concerns.

For this success there are two outstanding reasons: first, the actual value of character readings is rarely checked up; second, a few, not many, of the professional analysts, when subjected to actual tests, can make surprisingly good guesses.

As an illustration of the way in which character reading may obtain the prestige of success without being checked up in regard to its accuracy, I may cite the case of a large industrial plant, in which several thousand employees were "analyzed" by a reputed "expert" at a good round

price. This expert had a system devised by himself after the usual type, and apparently drawn either directly or indirectly from the older system from which my illustrations were taken and from which many other popular systems are drawn. This self-styled expert told me that in his opinion the systems of several other and better known fakery, whom he named, were defective because they were too rigid. "Now I," he went on to say, "have used in my system all that is worth while in psychology, phrenology and physiology; but I am not hide-bound like the others. When I find a case to which the system doesn't apply, I discard the system and use common sense." This expert spent several minutes in interviewing each employee, marking on a form card the characteristics of eyes, mouth, ears, hair, head form, etc. Then, combining these records, he decided upon the general mental and moral characteristics of the individual, and upon the particular line of work, if any, in the plant at which he should be put.

The "experting" of these employees was done at the instance of one of the directors of the corporation who had become interested in this sort of "efficiency" through the "success" obtained by it in certain other corporations. By the time the analyses were completed, this director had lost interest in this particular fad, and had become interested in another kind of "efficiency." The re-

sults were, of course, pigeonholed; the managers and foremen who were actually working with the employees knew too much to use the readings. But the "expert" went on to the next job with thousands of dollars in his pocket, and with the reputation of having successfully "experted" this corporation, whose directors, being cold, hard business men, obviously would not have put money in the scheme unless it were financially profitable. This corporation, of course, had been influenced by similar considerations. Other concerns had their employees "experted" "successfully," the success having been of the same imaginary sort.

"Success" under the conditions of an actual check-up is another matter, and it is said that certain "experts" have, under test conditions, achieved a surprising measure of success. Such tests are made by submitting to the inspection of the "expert" a number of individuals of known and proved capacity in various lines, but who are unknown to the "expert." The "expert" is then required to make a written statement as to the mental characteristics of each person, and these statements are compared with previously prepared statements based on the established characteristics of the test-persons.

Now I cannot guarantee that any such tests have actually been successful. I have to restrict my statement to the form "it is said." There are, of

course, many chances of erroneous conclusions when the tests are not made under the rigid supervision of psychologists. We know from the alleged proofs of telepathy and of various forms of spirit manifestations that unskilled investigators commonly overlook the most vital points in the test conditions, because they do not know their importance. The records on most tests of this sort have a value of approximately zero, because they contain no reliable evidence on the vital points, however much detailed information is given on other points.

But suppose we assume (although we may have as yet no good grounds for the assumption) that tests of certain character-analysts have given positive results. This would not be surprising. In fact, I should expect to find that some "experts" could produce positive results. Few "experts" are willing to submit to real tests, but those few who are willing must be so because they are confident that they could succeed to some extent, even in a carefully checked test.

We may freely admit that certain persons, working in entire independence of any system, may be able to make some good guesses. Many of us think that we can make good guesses. Our guesses are probably very much less accurate than we suppose, yet they may have some validity. In many cases we have to entrust important matters to individuals

as to whose honesty or intelligence we have no evidence except from our guesses based on brief observation of the visible appearance of the individual. There is no reason to suppose that professional character analysts should not be able to make as good guesses as any one else, provided these experts have the requisite native capacity, and provided that, like the one I quoted, they ignore their systems and use common sense.

It is actually a fact that we do make correct judgments about the transient mental processes of other persons without being able to identify the facts on which these judgments are based. If you are talking to some one, and you say something which offends or grieves or pleases him, you may recognize that fact at once, although it may be impossible for you to designate the exact change in his face or voice or posture which is the basis of your idea. You may even make similar judgments when carrying on a conversation over the telephone, in which case changes in the timbre and inflections of the voice alone could give you the clue. You know from the other person's voice that he is offended or pleased, although you may not be able to identify the exact change in his voice which is the important factor. When you have the visual clues from the other person's face, as well as the clues from his voice, your judgments are more definite and more secure.

This whole matter is but a special case of the more general phenomenon of perception and judgment by sign. It is a fact that in much of our perception we perceive meanings without perceiving the signs on which the perception is based. In some cases, the signs could be perceived, if attention were drawn to them; in other cases, the signs cannot be discriminated even under the best conditions. I shall not go into this topic in an extended way, both because it is familiar to psychologists, and because it cannot be briefly expounded to those without psychological training. I mention it only to show that on this point of character readings we are not dealing with a unique phenomenon, but with a particular manifestation of a general principle which runs broadly through our mental life.

As another illustration of the general principle, I may refer to certain cases of supposed "thought-reading" which are really cases of sign-reading. Many amateurs succeed in catching ideas from other persons, where there is physical relation of such sort that movements of the second person may actually stimulate receptors of the first person, either tactually, visually or acoustically. But these amateurs never succeed if they watch for the signs. They succeed only when they ignore the signs and attend to the meanings. In fact, if amateurs who succeed brilliantly in muscle reading tests become convinced that their performance really is muscle

reading and nothing more occult, they can usually do the trick no longer, and this is precisely what we might expect. Similarly, if, instead of watching to see whether the person you are talking to is pleased or not, you watch for the facial changes which indicate pleasure, you will not catch his emotional changes unless the symptoms are extremely gross. The conditions here are not greatly different from those obtaining in the visual perception of depth, where, if you attend to the signs, convergence, accommodation, binocular disparity, and so on, you will lose the depth-effect which those signs would give if they were not attended to.

The important question, therefore, is: What are the signs which tell us something about the mental characteristics of other persons? In the case of fleeting, ideational and emotional changes, these signs are obviously not anatomical; and in the case of fundamental tendencies of mental and moral sorts, we have already shown that there are no known anatomical signs. We are, therefore, forced to the conclusion that in the one case as in the other, the signs are physiological. Changes in the complicated muscular system of the face do occur along with ideas, especially if these ideas are emotionally toned. Changes in the complex musculature of the vocal organs and changes in the arm, leg and trunk muscles also occur. There are, in other words, changes in voice, in features, in posture and in

other bodily postures and movements which are perfectly competent to serve as indexes of ideational and emotional changes. Unfortunately, we have not yet succeeded in analyzing more than the most gross of these signs.

Fundamental tendencies in ideational and emotional reaction give rise to habitual modes of expression of the various sorts. Habitual modes of expression, moreover, leave their traces, especially in the face, even when the actual expression is not occurring. There would seem to be, therefore, a complex system of signs, not only of fleeting mental changes, but signs also of character traits, provided we can make use of them.

Signs of this sort are effective, prior to analysis. Habits of perception and of judgment are built up on signs, without necessitating any analysis or identification of such signs. Moreover, the development of the capacity to catch meanings in this way, if it be possible, depends upon native capacity as well as upon practice. We should, therefore, expect to find exactly what we do find, namely, that there is great individual variation in this apparent skill, and that in the absence of a really comprehensive and accurate analysis of signs, the attempt to attend to signs is a disturbing factor.

Character analysts, if successful under the real test conditions, obviously make their guesses just as you or I do. "The systems" can be nothing

but obstacles, since they have no real bearing on the problem. But, after having made a guess, the analyst can readily find in his system details which back up his guess, provided the system is elastic, depending upon sign patterns rather than upon hard and fast single signs. We need not assume that successful character analysts, if there are such, go through this sophistical process deliberately. The tendency to construe evidence to suit one's theory, and to recognize the data which may thus be construed, overlooking conflicting data, is too well known and too widespread to need demonstration. One of the important reasons why scientific procedure and scientific methods are necessary is that such procedure and methods are indispensable helps to the avoidance of arbitrary inferences, and even with the best of scientific aids the tendency will sometimes operate.

As a matter of fact, there is no reason to believe that the accuracy and reliability of such guesses as you and I and the character analyst make are very high. But there is reason to believe that if any character analyst does obtain even ten per cent of accuracy in certain special test cases, he very likely may not know how he gets his results, and may believe that he is getting them through his system, although he really is not.

I have no doubt that those mind-readers, such as Bishop and McIvor-Tyndall, who apparently at-

tained striking results under test conditions, sincerely believed that they were reading minds directly, and not through physical signs. Certainly, they could obtain those results only by ignoring the signs, and it may well be that they would not have been successful if they had known the actual nature of the process. I may mention here the observation I have made that the most successful hypnotists are those who have no scientific comprehension of the hypnotic process, but who really believe that they are exercising an occult power, or that some "magnetic fluid" flows from their hands to the patient.

On the other hand, it is true that we do, in much of our perception and thought, make use of signs effectively, although we are fully aware of the nature of those signs. In visual depth perception, to which I have already referred, we lose nothing in the perception of depth in pictures and landscapes through an exact knowledge of the signs, provided we do not attempt to attend to those signs in the moment of perception. As another pertinent illustration I may point out that the knowledge that the thinking-process proceeds through muscular signs does not interfere with the vividness and the efficiency of thinking, provided we do not attempt to attend to those signs while thinking.

It is therefore entirely possible that a scientific system of character measurement may some day

be developed. Such a system would be based on physiological, not on anatomical signs, and would necessarily be the result of extensive and prolonged experimental work. Even the development of such a system to the point of such relative efficiency as has been reached in mental measurements would require years of work by many and highly trained investigators, just as the development of mental measurements has required.

Although we do not know that it is possible to develop a science of character estimation, serious work in the attempt to find out is highly desirable. Even a definite negative result would be most valuable. In the meantime, a respectable name by which this field of investigation might be known would be practically useful. The term "analysis" and its derivatives can no longer be used in psychology, because, thanks to the efforts of the "psycho-analysts" and the "character-analysts," the terms "analysis" and "analyst" have come to connote superstition and quackery. In the meantime, in the interests of the gullible public as well as the interests of psychology, both pure and applied, we must carry on an educational campaign against "character analysis."

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